APPENDIX D

Draft 404(b)1 Analysis

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404(b)(1) Evaluation

US 93 Evaro-Polson EIS
SEIS Ninepipe/Ronan

MDT NH-F 5-1 (9) 6F
Control No. B744

Prepared for:

Montana Department of Transportation

October 2005

Prepared By:

SKILLINGS CONNOLLY

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Section 1. Introduction

The 404(b)(1) Guidelines, found in Title 40 of the Code of Federal Regulations, Part 230, are the substantive criteria used in evaluating discharges of dredged or fill material into Waters of the United States under Section 404 of the Clean Water Act and are applicable to all 404 permit decisions. Fundamental to these Guidelines is the precept that dredged or fill material should not be discharged into the aquatic ecosystems unless it can be demonstrated that such discharges would not have unacceptable adverse impacts either individually or in combination with known and/or probable impacts of other activities affecting the ecosystems of concern.

Subpart B of the guidelines establishes four conditions, which must be satisfied to make a finding that a proposed discharge complies with the guidelines. Section 230.10 provides that:

a) Except as provided under Section 404(b)(2), no discharge of dredged material shall be permitted if there is a practicable alternative to the proposed discharge which would have less adverse impact on the aquatic ecosystem, so long as the alternative does not have other significant adverse environmental consequences.
b) No discharge of dredged or fill material shall be permitted if it violates state water quality standards, Section 307 of the Clean Water Act, or the Endangered Species Act of 1973.
c) No discharge of dredge or fill material shall be permitted which would cause or contribute to significant degradation of the waters of the United States.
d) Except as provided under Section 404(b)(2), no discharge shall be permitted unless appropriate and practicable steps have been taken which will minimize adverse impacts of the discharge on the aquatic ecosystem.

Mitigation to offset significant and insignificant adverse impacts may be developed which could result in bringing a project into compliance with the guidelines. Impacts must be avoided to the maximum extent practicable and remaining unavoidable impacts will then be mitigated to the extent appropriate and practicable by requiring steps to minimize impacts and finally, by compensation for loss of aquatic resource values.

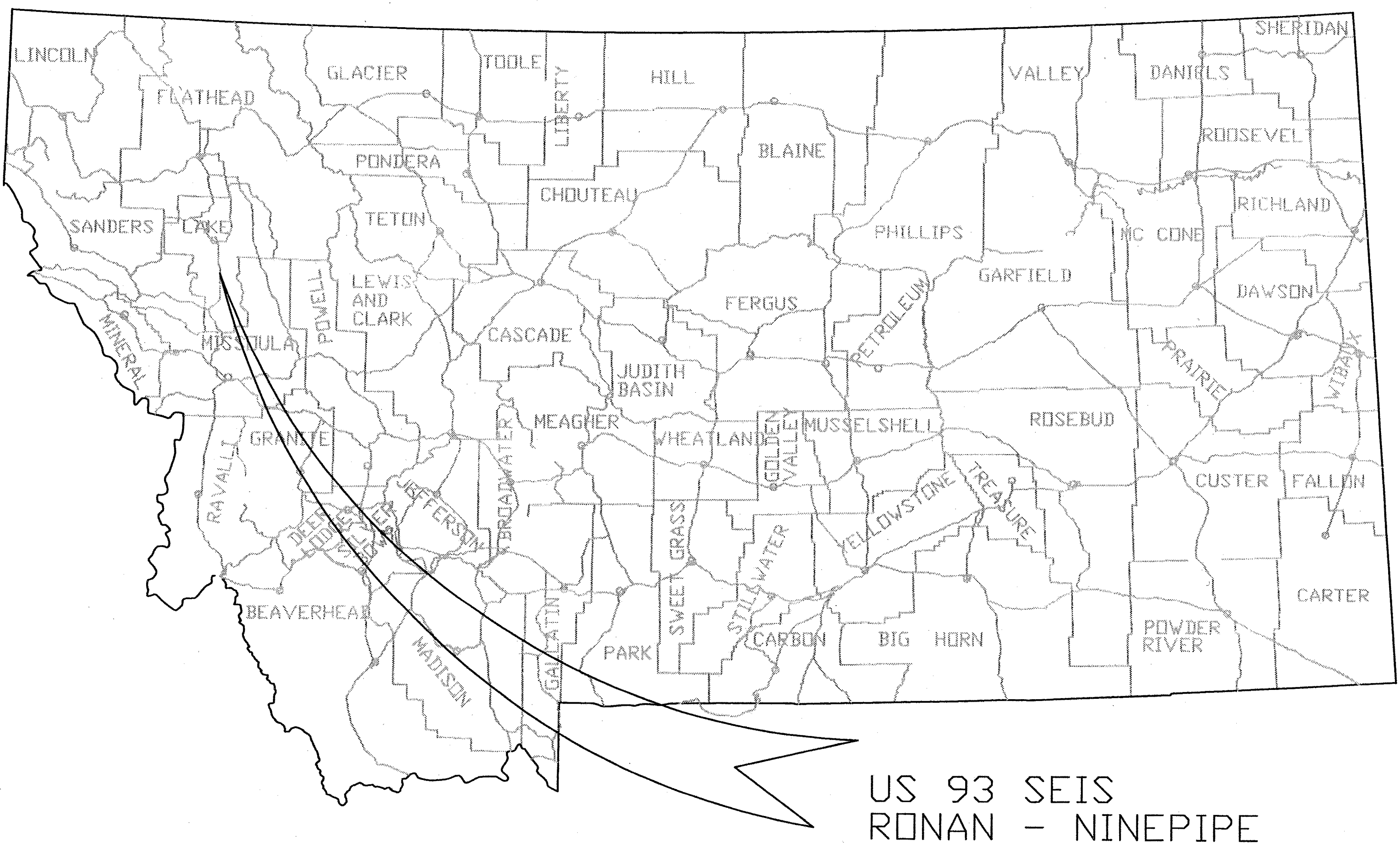
This evaluation represents the views of MDT on how the proposed action complies with the requirements of the 404(b)(1) Guidelines. It is not intended to represent the U.S. Army Corps of Engineers (USACE) views, conclusions, or their final 404(b)(1) Evaluation.

Section 2. Project Description

2. A. LOCATION

The Federal Highway Administration (FHWA), the Montana Department of Transportation (MDT), and the Confederated Salish and Kootenai Tribes (CSKT) propose to improve an 18-kilometer (11.20-mile) section of the existing U.S. Highway 93 (US 93) corridor in Montana. US 93 serves as the major north-south transportation corridor in western Montana (Figure 1, Vicinity Map). The US 93 Ninepipe/Ronan improvement project extends from Dublin Gulch Road/Red Horn Road to the proposed project’s northern terminus at Baptiste Road/Spring Creek Road (Figure 2, Location of Project on the US 93 Corridor). The project corridor lies entirely within Lake County, on the Flathead Reservation, which is governed by the Confederated Salish and Kootenai Tribes.

The Ninepipe/Ronan area is a wetland complex, located partially within a National Wildlife Refuge, which includes thousands of pothole wetlands, which offer diverse wildlife habitat. The Post Creek drainage basin, an important corridor for fish and wildlife, is also located within the project area.



VICINITY MAP

FIGURE 1

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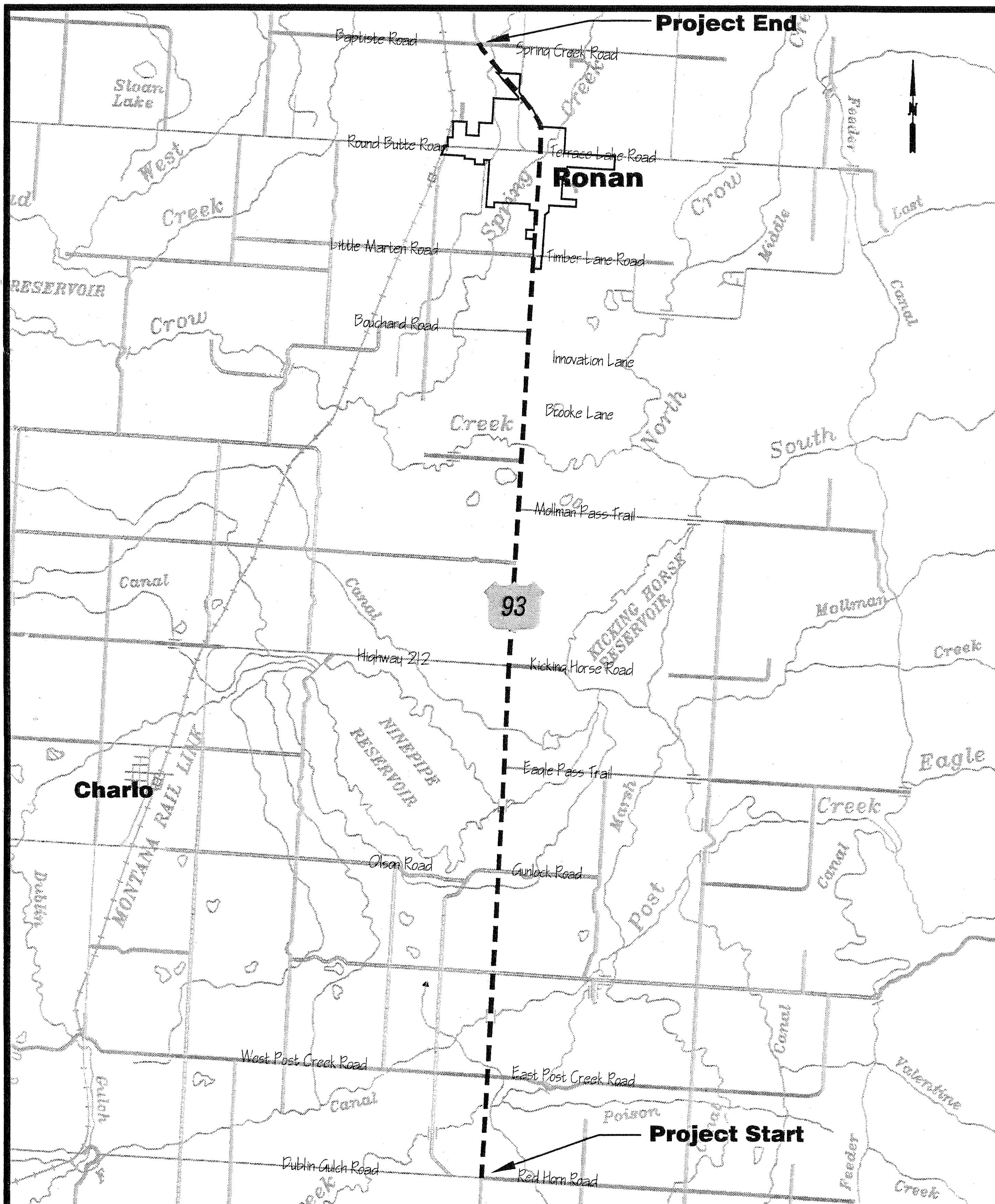

LOCATION OF PROJECT ON THE US 93 CORRIDOR

FIGURE 2

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Prime farmland acreage is prevalent along the unincorporated project segments of US 93 to the north and south of the City of Ronan. Residential and commercial activity is primarily limited to single family residences on large lots. Commercial activity is often of single proprietors operating from residential properties. Within the city limits of Ronan, natural habitats are limited to Ronan Spring Creek, which crosses US 93, and a limited number of wetlands near the northern terminus of the project corridor. US 93 is a major commercial corridor through the City of Ronan, with adjacent businesses providing a variety of motorist related services.

2.B. GENERAL DESCRIPTION

Project Background

In 1996, the FHWA, MDT, and CSKT issued the *U.S. Highway 93 – Evaro to Polson – Missoula and Lake Counties, Montana: Final Environmental Impact Statement and Section 4(f) Evaluation; FHWA-MT-EIS-95-01-F; F 5-1(9)6* (FHWA and MDT 1996) (referred to as the US 93 Evaro to Polson FEIS) consistent with requirements of the National Environmental Policy Act (NEPA). The Final Environmental Impact Statement (FEIS) described the impacts from improvement of a 90.6 km (56.3 mile) section of US 93 from Evaro to Polson. A Supplemental Environmental Impact Statement (SEIS) is being prepared concurrently with this 404(b)(1) Evaluation that will describe impacts to the Ninepipe/Ronan section of US 93. The SEIS is being prepared as a supplement to the FEIS to examine various alternatives for improving transportation in the project corridor and to identify the associated environmental impacts.

The US 93 Evaro to Polson FEIS described the proposed project and alternatives, and the social, economic, and environmental impacts of the corridor project. A Record of Decision (ROD) was issued on August 12, 1996; however, the ROD deferred making a decision on lane configurations, mitigation measures, and a Section 4(f) determination until agreement was reached by FHWA and MDT, along with their cooperating agency, the CSKT.

Representatives from MDT, FHWA, and CSKT (referred to as the “three governments” or “proponents”) then negotiated and signed the Memorandum of Agreement-US 93 Evaro to Polson (MDT, FHWA, and CSKT 2000) (referred to as the US 93 Corridor MOA). The US 93 Corridor MOA, dated December 20, 2000, lays out the preferred conceptual roadway improvements, including lane configurations, design features, and mitigation measures for 50 kilometers (30.6 miles) of US 93 from Evaro to the Dublin Gulch Road/Red Horn Road intersection (RP 37.1) near Saint Ignatius and for 17.4 kilometers (10.8 miles) of US 93 from the Baptiste Road/Spring Creek Road intersection near Ronan (RP 48.3) to the MT 35 intersection near Polson (RP 59.1). The US 93 Corridor MOA does not include an 18-kilometer (11.2-mile) section between the Dublin Gulch Road/Red Horn Road intersection (RP 37.1) and the Baptiste Road/Spring Creek Road intersection (RP 48.3), which is called the US 93 Ninepipe/Ronan project corridor.

The three governments agreed to prepare a Supplemental EIS (referred to as the US 93 Ninepipe/Ronan SEIS) for the Ninepipe/Ronan section. It was agreed a supplement was needed to explore possible alternate alignments around the environmentally sensitive Ninepipe glacial pothole wetland complex, and to study in more depth the effects of the highway improvement on the wetlands and wildlife in the corridor.

Project Alternatives

The SEIS evaluates the following alternatives:

No Action

The No Action Alternative will perpetuate the existing highway with no substantial improvements. Any improvements to the existing system would be considered on individual merits and could include spot safety improvements, channelization at intersections, climbing lanes, and signalization as dictated during the coming years.

Although the No Action Alternative does not meet the purpose and need for the proposed action, it is evaluated in detail in accordance with the National Environmental Policy Act (NEPA) and the Council on Environmental Quality (CEQ) regulations.

Lane Configuration Alternatives

All of the alternatives under consideration represent various combinations of the lane configurations included in the following descriptions.

The 1996 US 93 FEIS defined the four-lane configurations included in the study as follows:

> Lane configuration A is a two-lane two-way highway with auxiliary lanes. Where needed, passing lanes will be added for short distances, designated left-turn bays will be constructed at important intersections, and continuous two-way left-turn center medians will be constructed where there are high numbers of intersections and driveways.
>
> Lane configuration B is a four-lane highway with two traffic lanes in each direction. Designated left-turn bays will be constructed at important intersections.
>
> Lane configuration C is a four-lane highway with a continuous two-way left-turn center median.
>
> Lane configuration D is a four-lane highway with a divided, unpaved center median. Designated left-turn bays will be constructed at important intersections.

The alternatives studied in the SEIS include these lane configurations and variations of them singly or in combinations over the length of the proposed project.

All of the action alternatives will include reconstruction of the existing roadway. The reconstruction will provide for curvilinear horizontal alignment roughly following the existing roadway to minimize impacts to adjacent lands. Included will be construction of wider shoulders and revision of the vertical alignment to accommodate structures crossing waterways, streams, and riparian areas. Many of these structures will also serve as wildlife crossings. All slopes will follow the slope tables for rural and urban principal arterials as shown in the MDT Design Standards, except as modified in the preliminary project design (see Appendix A of the US 93 Ninepipe/Ronan Improvement Project Draft SEIS).

Rural Alternatives

The following alternatives were studied in detail. Impacts are set forth for two segments in the rural portion of the proposed project.

The Post Creek Hill segment begins at Red Horn Road and ends at the top of Post Creek Hill just south of Gunlock Road. The Ninepipe segment begins just south of Gunlock Road at the top of Post Creek Hill and ends at the south Ronan City limits.

<u>Alternative Rural 1</u> consists of a two-lane undivided highway throughout the length of the section.

<u>Alternative Rural 2</u> includes a two-lane undivided highway with a 2.9 km (1.8 mile) northbound passing lane from Post Creek Road to the top of Post Creek Hill just south of Gunlock Road.

<u>Alternative Rural 3</u> would include a two-lane undivided highway with a 2.9 km (1.8 mile) northbound passing lane from Post Creek Road to the top of Post Creek Hill and a four-lane divided section from Brooke Lane to the south Ronan City limits.

<u>Alternative Rural 4</u> would include a two-lane undivided highway with the addition of a 1.6+ km (1+ mile) southbound passing lane extending from south of the project limits to Post Creek, a 2.9 km (1.8 mile) northbound passing lane from Post Creek Road to the top of Post Creek Hill, a 1.6 km (1 mile) southbound passing lane from Mollman Pass Trail to Brooke Lane, and a four-lane divided section from Brooke Lane to the south Ronan City limits.

<u>Alternative Rural 5</u> would include a two-lane undivided highway with the addition of a 2.4 km (1.3 mile) southbound passing lane extending from south of the project limits to Post Creek Road, a 2.9 km (1.8 mile) northbound passing lane from Post Creek Road to the top of Post Creek Hill, and a 1.5 km (0.9 mile) four lane divided roadway from Innovation Lane to the south Ronan City limits.

<u>Alternative Rural 6</u> would provide a two-lane undivided highway from Red Horn Road to Post Creek Road with a 1.6 km (1.0 mile) southbound passing lane from south of the project limits to Post Creek, a 2.9 km (1.8 mile) section of four-lane divided roadway with independently aligned southbound and northbound travel lanes from Post Creek Road to the top of Post Creek Hill, two lanes undivided from the top of Post Creek Hill to Bouchard Road, and four lanes divided from Bouchard Road to the south Ronan City limits.

<u>Alternative Rural 7</u> provides for a two-lane undivided highway from Red Horn Road to the south Ronan City limits, with the addition of a 1.3 km (0.8 mile) southbound passing lane from south of the project limits (RP 36.7) to approximately 180 m (600 feet) south of Post Creek, a 2.9 km / 1.8 mile northbound passing lane from Post Creek Road to the top of Post Creek Hill, a 2.1 km (1.3 mile) northbound passing lane from RP 44.2 (north of Crow Creek) to RP 45.5 (north of Bouchard Road), and a 1.0 km (0.6 mile) southbound passing lane from RP 45.5 (north of Bouchard Road) to RP 46.1 just north of Little Marten Road/Timber Lane Road. The horizontal alignment generally follows the existing roadway with the curvilinear alignment added. The vertical alignment is a departure from the other alternatives, as the major structures are much more extensive. There would be a major structure at Post Creek and then from approximately Gunlock Road to just north of Crow Creek the highway would be nearly entirely on structures. Passage of large animals throughout the lengths of these structures is the objective. Left-turn lanes would be provided only at Gunlock Road, Eagle Pass Trail, Montana Highway 212 (MT 212), and Mollman Pass Trail in the Gunlock Road to Crow Creek section. All other public roads would be terminated, and all accesses would be right turn only, no left-turns provided. There would be a half round turnout at each end providing parking and for observing the pristine wetland areas. The elevated structure section would resemble an elevated parkway and would be constructed within the existing right-of-way. There would be additional observation areas constructed near Ninepipe Reservoir, MT 212, and Mollman Pass Trail.

Alternative Rural 8 consists of four lanes undivided throughout its length.

Alternative Rural 9 would provide for four lanes divided throughout its length.

Alternative Rural 10, the Rural Preliminary Preferred Alternative is similar to Alternative Rural 5, but has differing passing lane components. It would include two lanes undivided with the addition of a 0.8 km (0.5 mile) two-way left-turn lane extending from Dublin Gulch Road/Red Horn Road northward to a business entrance driveway on the east side, a 2.9 km (1.8 mile) northbound passing lane from Post Creek Road to the top of Post Creek Hill, a 1.9 km (1.2 mile) southbound passing lane from the top of Post Creek Hill to Eagle Pass Trail, and a 1.5 km (0.9 mile) section of four lane divided roadway from Innovation Lane to the south Ronan City limits.

Ronan Alternatives

The Ronan portion of the proposed project extends from the south city limits just south of Little Marten Road to Spring Creek Road on the north end.

Alternative Ronan 1 consists of four lanes with a raised landscaped median on the existing alignment throughout most of the length, transitioning to a four-lane divided section at the north end of the proposed project between old US 93 and the Baptiste Road/Spring Creek Road intersection.

Alternative Ronan 2 consists of four lanes on the existing alignment with a continuous two-way left-turn lane transitioning to a four-lane divided section at the north end of the proposed project between old US 93 and the Baptiste Road/Spring Creek Road intersection.

Alternative Ronan 3 would be a couplet with a two-lane one-way roadway northbound on the existing US 93 alignment and a two-lane southbound roadway constructed on the First Avenue SW alignment. This alternative would largely be constructed within the existing right-of-way of US 93 and First Avenue SW, except where the southbound transitions away from the existing and back again, where new right-of-way would be required. Transition sections would also be necessary at the southerly end to the selected rural lane configuration and to a four-lane divided section on the north end between old US 93 and the Baptiste Road/Spring Creek Road intersection.

Alternative Ronan 4 (Preliminary Preferred Alternative) would be a couplet with the northbound roadway on the existing alignment, and the southbound roadway on First Avenue SW, nearly identical to Alternative Ronan 3, except the southbound roadway on First Avenue SW would consist of a wider section which would include a 3 m / 10 ft planting area and a 3.6 m / 12 ft buffer on the west side of the street, and a 3 m / 10 ft planting area and a 1.8 m / 6 ft buffer on the east side. Most of the right-of-way would be purchased from the east side of the street to provide the maximum buffer to the neighborhood on the west. Transition sections, as described under Alternative Ronan 3, would also be necessary under this alternative.

Alternative Ronan 5 would be similar to the existing except that the three lanes would include curb and gutter on the existing alignment, with sidewalks for pedestrians and bicycle lanes for the bicyclists. Transition sections would also be necessary at the southerly end to the selected rural lane configuration and to a four-lane divided section on the north end between old US 93 and the Baptiste Road/Spring Creek Road intersection. It would also include improvements to First Avenue SW and First Avenue SE to provide for additional traffic circulation parallel to the US 93 roadway. This circulation would be for local traffic and may also be used as a bypass to the main roadway during periods of congestion.

The major environmental impacts and benefits of the rural and urban action alternatives are summarized in Sections 1.4.1 and 1.4.2 of the Draft SEIS.

2.C. AUTHORITY AND PURPOSE

US 93 is important to local, regional and nationwide transportation; the volume of traffic is high, has been steadily increasing and is projected to continue to increase. The existing roadway has various geometric features that do not meet current guidelines and standards for safety and design. Existing level-of-service (LOS) is poor, and is projected to get worse by the design year 2024. With the high volume of traffic, the accident rate is lower than the statewide average accident rate, while accident severity numbers (proportion of fatal and injury accidents) are substantially higher than statewide averages. Bicycle and pedestrian facilities are very limited in the project corridor. The City of Ronan, CSKT, and MDT have all supported the need for improved bicycle and pedestrian accommodations.

The US 93 Evaro to Polson FEIS described the proposed project, alternatives, and social, economic and environmental impacts of the proposed project. A Record of Decision (ROD) was issued, which selected the existing alignment for improvement throughout the length of the proposed project, calling for a corridor bypassing the City of Ronan, and allowing for right-of-way acquisition and access control. However, the ROD deferred making a decision on lane configurations, mitigation measures, and a Section 4(f) determination until agreement was reached by the three stakeholders on lane-configuration, design features, and mitigation measures for the corridor bypass.

The Ninepipe/Ronan improvement project corridor, which is a segment of the overall U.S. Highway 93 Evaro to Polson project, is an 18 km (11.2 mile) section that extends from Dublin Gulch Road/Red Horn Road to Baptiste Road/Spring Creek Road. This section is being evaluated separately from the overall project due to design conditions and alternative analysis. The purpose of the proposed action within this section remains the same as stated; to improve the transportation system of US 93. This supplement (SEIS) to the US 93 FEIS will evaluate impacts to various alternatives within the US 93 Ninepipe/Ronan project corridor. This 404(b)(1) Evaluation will detail impacts to the aquatic ecosystem based on the different alternatives.

2.D. GENERAL DESCRIPTION OF THE DREDGED OR FILL MATERIAL

2.D.1 General Characteristics of Material

Fill material will be excavated locally and will be similar in physical and chemical characteristics to substrate in wetlands that are filled. Material used in wetland fills is likely to be an American Association of State and Transportation Highway Officials (AASHTO) approved fill material with no organics, more granular soils, etc. Also, some sub-excavation may be needed for construction of the road base. While excavation and borrow sites have not been identified at this time, the site will be chosen in part on certain characteristics. General fill material may be suitable soils, including earth and crushed or naturally occurring sands and gravels. Some fill material may be concrete, steel, or similar materials that could be used for culvert or bridge construction. Rock riprap may be used to resist erosion around flowing water.

2.D.2 Quantity of Material

Quantities of fill material will depend upon the action alternative that is selected and specific topographical features of affected wetlands. Quantities of fill material to be placed will be determined during the final design phase of the proposed project. Quantities will be sufficient to construct the roadway and appurtenant features. Appendix A of the US 93 Ninepipe/Ronan improvement project Draft SEIS details the MDT standard slopes applied in the preliminary design for the US 93 Ninepipe/Ronan improvement project.

2.D.3. Source of Material

The locations of the borrow pits that will be used as fill material for the proposed project have not yet been finalized. The source of fill material to be placed will be determined during the final design phase of the proposed project. Borrow or excavation sites will not be allowed if they have high levels of salinity, acid-generating materials, heavy metals, pesticides or other elements or substances potentially harmful to fish, wildlife, or other aquatic organisms. Due to the fact that borrow sites would require environmental review and approval prior to their use, development of the borrow sites will not have any adverse effects on aquatic resources, cultural or historic resources, or any threatened or endangered species.

2.E. DESCRIPTION OF THE PROPOSED DISCHARGE SITES

The information contained in this section is summarized from the *Biological Resources Report: US 93 Ninepipe/Ronan improvement project* (Herrera 2005a) prepared for the proposed project. The report documents the methodology used in the wetland determination, describing the location, overall size, and type of wetlands identified within the project corridor. The report also describes the potential impacts to site wetlands that are associated with the action alternatives, and the proposed mitigation for each alternative. Table 1 is a summary of the wetland occurrence, wetland classification, and associated water bodies in the project corridor

2.E.1 Location of Sites

Wetlands and surface waters (measured by area) affected by the action alternatives are located within Lower Flathead Watershed (HUC 17010212). The locations of all identified wetlands are listed in Table 1 (Wetland Location and Classification). The locations of other surface waters in the project area are listed in Table 2.

2.E.2 Size of Sites

The wetland boundaries were determined using the *Corps of Engineers Wetlands Delineation Manual* (Environmental Laboratory 1987). All wetlands within the proposed right-of-way lines, either completely or partially, were evaluated to determine the extent of their boundaries.

Table 1 shows the estimated overall acreage of each wetland within the corridor at each specific location.

2.E.3 Type of Sites

Wetlands in the project area are divided into five wetland types based on their appearance and position in the landscape: riparian zone wetlands, pothole wetlands, Ninepipe Reservoir wetlands, irrigation feature wetlands, and roadside ditch wetlands. Riparian zone wetlands are located in the floodplains of associated streams, outside of the stream channel. Prairie pothole wetlands are depressions in the landscape that are fed by surface water or groundwater. These depressional areas were formed by glaciation. Pothole wetlands were further divided into 3 groups: Group 1 pothole wetlands are inundated by precipitation, surface water runoff, and/or ground water inflow for all of the year; Group 2 pothole wetlands are usually saturated at or near the soil surface for all or most of the year and inundated for portions of the year; and Group 3 pothole wetlands are depression areas that are inundated periodically, but with much longer lengths of time between inundations. Ninepipe Reservoir wetlands are the two wetlands within the US 93 right-of-way that are associated with the Ninepipe Reservoir. Irrigation feature wetlands include feeder canals, lateral canals, and features resulting from seepage of the irrigation system. The remaining wetland type, roadside ditch wetlands,

Table 1. Characteristics of wetlands in the US 93 Ninepipe/Ronan improvement project corridor.

Wetland ID	Reference Post	Wetland Type [a]	USACE Jurisdictional Status [b]	Cowardin Class [c]	Hansen Community Type [d]	Montana Wetland Category [e]	Estimated Size [f] Hectares (acres)
H14A	*37.2 to 37.3*	*Riparian zone (unnamed tributary to Post Creek 1)*	*Jurisdictional*	*PEM, PSS, PAB*	*Unclassified riparian or wetland site*	*II*	*0.6 (1.4)*
H14B	37.2 to 37.3	Riparian zone (unnamed tributary to Post Creek 1)	Jurisdictional	PEM, PSS, PAB	Unclassified riparian or wetland site	II	0.5 (1.2)
H15A	37.4 to 37.6	Riparian zone (Ashley Creek)	Jurisdictional	PEM	Sedge community type	III	0.5 (1.2)
H15B	37.6	Riparian zone (Ashley Creek)	Jurisdictional	PEM	Sedge community type	III	0.01 (0.03)
H15C	37.6	Riparian zone (Ashley Creek)	Jurisdictional	PEM	Sedge community type	III	0.1 (0.2)
H16A	37.6 to 37.8	Riparian zone (Post Creek)	Jurisdictional	PEM, PSS, PAB, PUB	Quaking aspen/red-osier dogwood habitat type	I	8.4 (20.8)
H16B	37.6 to 38.1	Riparian zone (Post Creek)	Jurisdictional	PEM, PSS, PAB, PUB	Quaking aspen/red-osier dogwood habitat type	I – Post Creek Riparian Floodplain, III – north of the Post Creek Channel, associated with drainage from H16C	4.4 (10.9)
H16C	38.1 to 38.2	Riparian zone (unnamed tributary to Post Creek 2)	Jurisdictional	PEM, PSS, PAB	Quaking aspen/red-osier dogwood habitat type	III	0.8 (1.9)
H17A	37.9 to 38.1	Riparian zone (unnamed tributary to Post Creek 3)	Jurisdictional	PEM	Common cattail habitat type	III	0.2 (0.5)
H17B	38.1 to 38.3	Roadside ditch	Jurisdictional	PEM	Common cattail habitat type	IV	0.2 (0.5)

Wetland ID	Reference Post	Wetland Type [a]	USACE Jurisdictional Status [b]	Cowardin Class [c]	Hansen Community Type [d]	Montana Wetland Category [e]	Estimated Size [f] Hectares (acres)
H17C	38.3 to 38.5	Roadside ditch	Jurisdictional	PEM	Common cattail habitat type	IV	0.1 (0.2)
H17D	38.5	Roadside ditch	Jurisdictional	PEM	Common cattail habitat type	IV	0.04 (0.1)
H17E	38.5	Roadside ditch	Jurisdictional	PEM	Common cattail habitat type	IV	0.01 (0.02)
H17F	38.6	Roadside ditch	Jurisdictional	PEM	Common cattail habitat type	IV	0.1 (0.1)
H18A	38.4	Irrigation feature	Jurisdictional	PEM	Nebraska sedge community type	III	0.03 (0.07)
H18B	38.4 to 38.6	Irrigation feature	Jurisdictional	PEM	Nebraska sedge community type	III	1.6 (3.8)
H19A	38.6	Irrigation feature	Jurisdictional	PEM, PUB	Reed canarygrass habitat type	III	0.1 (0.2)
H19B	38.6 to 39.1	Irrigation feature	Jurisdictional	PEM, PUB	Nebraska sedge community type	III	0.8 (2.0)
H20A	39	Irrigation feature	Jurisdictional	PEM, PUB	Nebraska sedge community type	III	0.2 (0.5)
H21A	39.1 to 39.3	Roadside ditch	Jurisdictional	PEM	Common cattail habitat type	III	0.3 (0.7)
H21B	39.4 to 39.5	Roadside ditch	Non-jurisdictional	PEM	Common cattail habitat type	III	0.2 (0.5)
H22A	39.4 to 39.6	Roadside ditch	Non-jurisdictional	PEM	Common cattail habitat type	III	0.2 (0.5)
H22B	39.4	Irrigation feature	Non-jurisdictional	PEM	Reed canarygrass habitat type	III	0.1 (0.2)
H22C	39.4	Irrigation feature	Non-jurisdictional	PEM	Reed canarygrass habitat type	III	0.1 (0.2)
H23A	39.5 to 39.7	Roadside ditch	Non-jurisdictional	PEM	Common cattail habitat type	III	0.1 (0.2)
H23B	39.6 to 39.7	Roadside ditch	Non-jurisdictional	PEM	Common cattail habitat type	III	0.1 (0.2)
H23C	39.7	Roadside ditch	Non-jurisdictional	PEM	Common cattail habitat type	III	0.01 (0.02)
H24A	39.7	Irrigation feature	Jurisdictional	PEM	Sedge community type	III	0.1 (0.2)

Wetland ID	Reference Post	Wetland Type [a]	USACE Jurisdictional Status [b]	Cowardin Class [c]	Hansen Community Type [d]	Montana Wetland Category [e]	Estimated Size [f] Hectares (acres)
H24B	39.7	Group 2 pothole wetland	Non-jurisdictional	PEM, PUB	Unclassified riparian or wetland site	II	0.2 (0.5)
H24C	39.8	Group 2 pothole wetland	Non-jurisdictional	PEM	Common cattail habitat type	III	0.04 (0.10)
H24D	39.8	Group 2 pothole wetland	Non-jurisdictional	PEM	Common cattail habitat type	III	0.02 (0.05)
H25A	39.8	Group 2 pothole wetland	Non-jurisdictional	PEM	Common cattail habitat type	II	0.2 (0.5)
H26A	39.8	Irrigation feature	Jurisdictional	PEM, PSS	Black cottonwood/herbaceous community type	III	0.3 (0.7)
H26B	39.9	Group 3 pothole wetland	Non-jurisdictional	PEM	Reed canarygrass habitat type	III	0.04 (0.1)
H26C	39.9	Group 2 pothole wetland	Non-jurisdictional	PEM	Common cattail habitat type	III	0.1 (0.2)
H27A	39.9 to 40	Group 2 pothole wetland	Non-jurisdictional	PEM, PUB	Common cattail habitat type	II	1.3 (3.2)
H27B	39.9	Group 1 pothole wetland	Jurisdictional	PEM, PUB	Common cattail habitat type	II	0.3 (0.7)
H27C	40	Group 3 pothole wetland	Jurisdictional	PEM, PUB	Common cattail habitat type	II	0.01 (0.02)
H27D	39.9	Group 2 pothole wetland	Jurisdictional	PEM, PUB	Common cattail habitat type	II	0.03 (0.07)
H27E	39.9	Group 3 pothole wetland	Jurisdictional	PEM, PUB	Common cattail habitat type	II	0.1 (0.2)
H27F	39.9	Group 3 pothole wetland	Jurisdictional	PEM, PUB	Common cattail habitat type	II	0.02 (0.05)
H27G	40	Group 1 pothole wetland	Non-jurisdictional	PEM, PUB	Reed canarygrass habitat type	II	0.6 (1.5)
H27H	40	Group 2 pothole wetland	Non-jurisdictional	PEM, PUB	Reed canarygrass habitat type	II	0.1 (0.2)
H27I	40	Roadside ditch	Non-jurisdictional	PEM	Common cattail habitat type	IV	0.04 (0.10)
H28A	40.1 to 40.2	Group 1 pothole	Non-	PEM, PAB,	Common cattail habitat	II	1.0 (2.5)

Wetland ID	Reference Post	Wetland Type [a]	USACE Jurisdictional Status [b]	Cowardin Class [c]	Hansen Community Type [d]	Montana Wetland Category [e]	Estimated Size [f] Hectares (acres)
		wetland	jurisdictional	PUB	type		
H29A	40.4	Group 1 pothole wetland	Non-jurisdictional	PEM, PUB	Common cattail habitat type	II	0.9 (2.2)
H30A	40.4 to 41	Ninepipe Reservoir	Jurisdictional	PEM, PUB	Reed canarygrass habitat type	II	8.3 (20.4)
H30B	40.4 to 40.8	Ninepipe Reservoir	Jurisdictional	PEM, PUB	Reed canarygrass habitat type	II	7.8 (19.3)
H31A	40.8 to 41	Group 1 pothole wetland	Non-jurisdictional	PEM, PUB	Common cattail habitat type	II	0.5 (1.2)
H31B	41.1	Group 1 pothole wetland	Non-jurisdictional	PEM, PUB	Reed canarygrass habitat type	II	0.3 (0.7)
H32A	41.1	Group 3 pothole wetland	Non-jurisdictional	PEM	Common cattail habitat type	III	0.004 (0.01)
H32B	41.1	Group 3 pothole wetland	Non-jurisdictional	PEM	Common cattail habitat type	III	0.02 (0.05)
H32C	41.1	Group 3 pothole wetland	Non-jurisdictional	PEM	Common cattail habitat type	III	0.01 (0.02)
H32D	41.2	Group 3 pothole wetland	Non-jurisdictional	PEM	Common cattail habitat type	III	0.004 (0.01)
H33A	41.1	Group 2 pothole wetland	Non-jurisdictional	PEM	Common cattail habitat type	III	0.04 (0.10)
H33B	41.2	Group 1 pothole wetland	Non-jurisdictional	PEM, PSS, PFO	Black cottonwood/herbaceous community type	II	0.8 (2.0)
H33C	41.2	Group 3 pothole wetland	Non-jurisdictional	PEM	Common cattail habitat type	III	0.03 (0.07)
H34A	41.3	Group 1 pothole wetland	Non-jurisdictional	PEM, PUB	Black cottonwood/herbaceous community type	II	0.3 (0.7)
H34B	41.3	Group 2 pothole wetland	Non-jurisdictional	PEM	Common cattail habitat type	III	0.1 (0.2)
H34C	41.3 to 41.4	Group 1 pothole wetland	Non-jurisdictional	PEM, PSS, PUB	Black cottonwood/red-osier dogwood community type	II	1.4 (3.5)

Wetland ID	Reference Post	Wetland Type [a]	USACE Jurisdictional Status [b]	Cowardin Class [c]	Hansen Community Type [d]	Montana Wetland Category [e]	Estimated Size [f] Hectares (acres)
H34D	41.4	Group 1 pothole wetland	Non-jurisdictional	PEM, PSS, PUB	Common cattail habitat type	II	0.3 (0.7)
H35A	41.4	Irrigation feature	Jurisdictional	PEM, PFO, PAB, PUB	Reed canarygrass habitat type	III	0.02 (0.05)
H35B	41.4	Irrigation feature	Jurisdictional	PEM, PFO, PAB, PUB	Reed canarygrass habitat type	III	0.1 (0.2)
H36A	41.5	Roadside ditch	Non-jurisdictional	PEM	Common cattail habitat type	III	0.01 (0.02)
H37A	41.6 to 41.8	Group 1 pothole wetland, Kettle Pond 1	Non-jurisdictional	PEM, PUB	Reed canarygrass habitat type	II	2.4 (6.0)
H37B	41.6 to 41.8	Group 1 pothole wetland, Kettle Pond 1	Non-jurisdictional	PEM, PUB	Reed canarygrass habitat type	II	1.7 (4.2)
H38A	41.9	Group 2 pothole wetland	Non-jurisdictional	PEM	Unclassified riparian or wetland site	IV	0.04 (0.10)
H39A	41.9	Group 1 pothole wetland	Non-jurisdictional	PEM, PUB	Common cattail habitat type	III	0.2 (0.5)
H39B	41.9 to 42	Group 1 pothole wetland	Non-jurisdictional	PEM, PUB	Common cattail habitat type	III	0.6 (1.5)
H40A	42	Group 1 pothole wetland	Non-jurisdictional	PEM, PUB	Common cattail habitat type	III	0.9 (2.2)
H40B	42	Group 2 pothole wetland	Non-jurisdictional	PEM, PUB	Reed canarygrass habitat type	III	0.10 (0.2)
H40C	42	Group 1 pothole wetland	Non-jurisdictional	PEM, PUB	Common cattail habitat type	III	0.2 (0.5)
H40D	42	Roadside ditch	Non-jurisdictional	PEM	Common cattail habitat type	III	0.004 (0.01)
H40E	42.1	Group 3 pothole wetland	Non-jurisdictional	PEM	Common cattail habitat type	III	0.1 (0.2)
H40F	42.1	Group 3 pothole wetland	Non-jurisdictional	PEM	Common cattail habitat type	III	0.04 (0.10)
I1A	42.1	Irrigation feature	Non-jurisdictional	PEM	Common cattail habitat type	IV	0.004 (0.01)

Wetland ID	Reference Post	Wetland Type [a]	USACE Jurisdictional Status [b]	Cowardin Class [c]	Hansen Community Type [d]	Montana Wetland Category [e]	Estimated Size [f] Hectares (acres)
I1B	42.1	Irrigation feature	Non-jurisdictional	PEM	Common cattail habitat type	IV	0.01 (0.02)
I2A	42.2	Group 2 pothole wetland	Non-jurisdictional	PEM	Common cattail habitat type	IV	0.02 (0.05)
I3A	42.	Group 2 pothole wetland	Non-jurisdictional	PEM	Common cattail habitat type	III	0.1 (0.2)
I3B	42.4	Group 1 pothole wetland	Non-jurisdictional	PEM	Common cattail habitat type	III	0.1 (0.2)
I3C	42.3 to 42.4	Group 1 pothole wetland	Non-jurisdictional	PEM, PUB	Reed canarygrass habitat type	II	0.2 (0.5)
I3D	42.4	Group 1 pothole wetland	Non-jurisdictional	PEM, PUB	Reed canarygrass habitat type	II	0.4 (1.0)
I3E	42.8	Group 2 pothole wetland	Non-jurisdictional	PEM	Common cattail habitat type	III	0.1 (0.2)
I4A	42.5 to 42.6	Group 1 pothole wetland, Kettle Pond 2	Non-jurisdictional	PEM, PUB	Reed canarygrass habitat type	II	2.00 (5.0)
I4B	42.5 to 42.6	Group 1 pothole wetland, Kettle Pond 2	Non-jurisdictional	PEM, PUB	Reed canarygrass habitat type	II	0.9 (2.2)
I5A	42.7	Group 2 pothole wetland	Non-jurisdictional	PEM	Common cattail habitat type	III	0.1 (0.2)
I5B	42.5 to 42.7	Group 1 pothole wetland	Non-jurisdictional	PEM	Common cattail habitat type	III	0.5 (1.2)
I6A	42.7	Group 1 pothole wetland	Non-jurisdictional	PEM	Common cattail habitat type	III	0.10 (0.2)
I6B	42.7	Group 1 pothole wetland	Non-jurisdictional	PEM	Common cattail habitat type	III	0.04 (0.10)
I6C	42.8	Group 3 pothole wetland	Non-jurisdictional	PEM	Common cattail habitat type	III	0.03 (0.07)
I6D	42.8 to 42.8	Group 1 pothole wetland	Non-jurisdictional	PEM, PUB	Reed canarygrass habitat type	II	0.7 (1.7)
I6E	42.8	Group 3 pothole wetland	Non-jurisdictional	PEM	Common cattail habitat type	III	0.02 (0.05)

Wetland ID	Reference Post	Wetland Type [a]	USACE Jurisdictional Status [b]	Cowardin Class [c]	Hansen Community Type [d]	Montana Wetland Category [e]	Estimated Size [f] Hectares (acres)
I7A	42.8 to 42.9	Group 1 pothole wetland	Non-jurisdictional	PEM, PUB	Reed canarygrass habitat type	II	0.2 (0.5)
I7B	42.9	Group 1 pothole wetland	Non-jurisdictional	PEM, PUB	Reed canarygrass habitat type	II	0.6 (1.5)
I7C	43	Group 2 pothole wetland	Non-jurisdictional	PEM	Unclassified riparian or wetland site	III	0.1 (0.2)
I8A	43	Group 1 pothole wetland	Non-jurisdictional	PEM	Common cattail habitat type	II	0.1 (0.2)
I8B	43.1 to 43.2	Group 1 pothole wetland	Non-jurisdictional	PEM	Common cattail habitat type	II	0.2 (0.5)
I8C	43.1 to 43.2	Group 1 pothole wetland	Non-jurisdictional	PEM	Common cattail habitat type	II	0.6 (1.5)
I8D	43.2	Group 1 pothole wetland	Non-jurisdictional	PEM	Common cattail habitat type	II	0.5 (1.2)
I9A	43.3	Group 1 pothole wetland	Non-jurisdictional	PEM	Common cattail habitat type	III	0.3 (0.7)
I9B	43.3	Group 2 pothole wetland	Non-jurisdictional	PEM	Common cattail habitat type	III	0.04 (0.1)
I10A	43.4	Group 1 pothole wetland	Non-jurisdictional	PEM, PUB	Reed canarygrass habitat type	III	0.1 (0.2)
I11A	43.4	Roadside ditch	Non-jurisdictional	PEM	Common cattail habitat type	IV	.004 (0.01)
I11B	43.4	Roadside ditch	Non-jurisdictional	PEM	Common cattail habitat type	IV	.004 (0.01)
I11C	43.4	Roadside ditch	Non-jurisdictional	PEM	Common cattail habitat type	IV	.004 (0.01)
I11D	43.4	Roadside ditch	Non-jurisdictional	PEM	Common cattail habitat type	IV	.004 (0.01)
I12A	43.4	Group 1 pothole wetland	Non-jurisdictional	PEM, PUB	Common cattail habitat type	III	0.1 (0.2)
I12B	43.5	Group 1 pothole wetland	Non-jurisdictional	PEM, PUB	Common cattail habitat type	III	0.1 (0.2)
I12C	43.5	Group 2 pothole wetland	Non-jurisdictional	PEM, PUB	Common cattail habitat type	III	0.02 (0.05)

Wetland ID	Reference Post	Wetland Type [a]	USACE Jurisdictional Status [b]	Cowardin Class [c]	Hansen Community Type [d]	Montana Wetland Category [e]	Estimated Size [f] Hectares (acres)
I13A	43.4	Group 1 pothole wetland	Non-jurisdictional	PEM, PUB	Reed canarygrass habitat type	III	0.02 (0.05)
I13B	43.4 to 43.5	Group 1 pothole wetland	Non-jurisdictional	PEM, PUB	Reed canarygrass habitat type	III	0.6 (1.5)
I13C	43.5	Group 3 pothole wetland	Non-jurisdictional	PEM, PUB	Reed canarygrass habitat type	III	0.02 (0.05)
I13D	43.5	Group 2 pothole wetland	Non-jurisdictional	PEM, PUB	Common cattail habitat type	III	0.1 (0.2)
I13E	43.5	Group 2 pothole wetland	Non-jurisdictional	PEM, PUB	Common cattail habitat type	III	0.02 (0.05)
I13F	43.5	Group 2 pothole wetland	Non-jurisdictional	PEM, PUB	Common cattail habitat type	III	0.03 (0.07)
I14A	43.6 to 43.7	Group 2 pothole wetland	Non-jurisdictional	PEM	Common cattail habitat type	III	0.50 (1.2)
I14B	43.6	Group 1 pothole wetland	Non-jurisdictional	PEM	Reed canarygrass habitat type	III	0.2 (0.5)
I14C	43.6 to 43.8	Group 1 pothole wetland	Non-jurisdictional	PEM	Common cattail habitat type	III	0.9 (2.2)
I15A	43.8 to 44	Group 1 pothole wetland	Non-jurisdictional	PEM, PUB	Unclassified riparian or wetland site	II	2.4 (5.9)
I16A	44 to 44.2	Riparian zone (Crow Creek)	Jurisdictional	PEM, PSS, PAB, PUB	Unclassified riparian or wetland site	II	1.5 (3.7)
I16B	44 to 44.2	Riparian zone (Crow Creek)	Jurisdictional	PEM, PSS, PAB, PUB	Unclassified riparian or wetland site	II	0.8 (2.0)
I17A	44.2 to 44.3	Roadside ditch	Jurisdictional	PAB	Common cattail habitat type	IV	0.1 (0.2)
I17B	44.3	Roadside ditch	Jurisdictional	PAB	Common cattail habitat type	IV	0.02 (0.05)
I17C	44.4 to 44.5	Roadside ditch	Jurisdictional	PAB	Common cattail habitat type	IV	0.1 (0.2)
I17D	44.5 to 44.6	Roadside ditch	Jurisdictional	PAB	Common cattail habitat type	IV	0.1 (0.2)
I17E	44.7	Roadside ditch	Jurisdictional	PAB	Common cattail habitat type	IV	0.1 (0.2)

Wetland ID	Reference Post	Wetland Type [a]	USACE Jurisdictional Status [b]	Cowardin Class [c]	Hansen Community Type [d]	Montana Wetland Category [e]	Estimated Size [f] Hectares (acres)
I18A	44.8	Roadside ditch	Non-jurisdictional	PAB	Common cattail habitat type	IV	0.004 (0.01)
I18B	44.8	Roadside ditch	Non-jurisdictional	PAB	Common cattail habitat type	IV	0.01 (0.02)
I18C	44.9	Roadside ditch	Non-jurisdictional	PAB	Common cattail habitat type	IV	0.02 (0.05)
I18D	44.9	Roadside ditch	Non-jurisdictional	PAB	Common cattail habitat type	IV	0.01 (0.02)
I19A	44.2 to 44.6	Roadside ditch; Group 2 pothole wetland	Jurisdictional	PAB	Common cattail habitat type	IV	0.6 (1.5)
I19B	44.6 to 44.7	Roadside ditch; Group 2 pothole wetland	Jurisdictional	PAB	Common cattail habitat type	IV	0.4 (1.0)
I20A	45.1	Roadside ditch	Non-jurisdictional	PAB	Common cattail habitat type	IV	0.004 (0.01)
I20B	45.1	Roadside ditch	Non-jurisdictional	PAB	Common cattail habitat type	IV	0.01 (0.02)
I20C	45.1	Roadside ditch	Non-jurisdictional	PAB	Common cattail habitat type	IV	0.01 (0.02)
I21A	45.1	Irrigation feature	Jurisdictional	PEM, PAB	Common cattail habitat type	III	0.3 (0.7)
I21B	45.1 to 45.3	Irrigation feature	Jurisdictional	PEM, PAB	Common cattail habitat type	III	0.2 (0.5)
I22A	45.5	Irrigation feature	Non-jurisdictional	PEM	Unclassified riparian or wetland site	IV	0.2 (0.5)
I22B	45.5	Irrigation feature	Non-jurisdictional	PEM	Unclassified riparian or wetland site	IV	0.04 (0.10)
J2A	47.2	Group 2 pothole wetland	Jurisdictional	PEM, PAB	Common cattail habitat type	III	0.1 (0.2)
J2B	47.2	Irrigation feature	Jurisdictional	PEM, PAB	Unclassified riparian or wetland site	III	0.1 (0.2)
J2C	47.1 to 47.2	Riparian zone (Ronan Spring	Jurisdictional	PEM, PSS, PUB	Reed canarygrass habitat type	II	0.9 (2.2)

Wetland ID	Reference Post	Wetland Type [a]	USACE Jurisdictional Status [b]	Cowardin Class [c]	Hansen Community Type [d]	Montana Wetland Category [e]	Estimated Size [f] Hectares (acres)
		Creek)					
J2D	47.1	Riparian zone (Ronan Spring Creek)	Jurisdictional	PEM, PSS, PUB	Reed canarygrass habitat type	II	0.1 (0.2)
J3A	47.4	Irrigation feature	Non-jurisdictional	PEM, PAB	Common cattail habitat type	III	0.6 (1.5)
J4A	48.2	Group 3 pothole wetland	Jurisdictional	PEM, PAB	Common cattail habitat type	III	0.3 (0.7)
J4B	48.3	Group 1 pothole wetland	Jurisdictional	PEM, PAB	Common cattail habitat type	III	1.3 (3.2)

[a] Wetland types, including the pothole wetland groupings, are described below in this section.
[b] USACE jurisdictional status was determined by project biologists and has not been confirmed by the USACE. Wetlands within the project corridor are also regulated by CSKT per the Aquatic Lands Conservation Ordinance 87A.
[c] Source: Cowardin et al. 1979. Wetland classes include: PAB - palustrine aquatic bed, PEM – palustrine emergent, PFO -palustrine forested, PSS - palustrine scrub-shrub, PUB - palustrine unconsolidated bottom wetland
[d] Source: Hansen et al. 1995.
[e] Source: MDT 1995.
[f] The size of the wetland is the area of the wetland generally within the proposed right-of-way for the widest alternative (Rural 9). Many of the wetlands in the project corridor are entirely within this limit and others, such as wetlands associated with streams and the Ninepipe Reservoir extend beyond this limit. For the latter case, the acreage presented does not represent the size of the entire system.

are artificial wetlands that did not historically exist and are present as a result of runoff from the roadway collecting and ponding in roadway ditches or by interception of groundwater caused by excavation of the ditch.

Table 2. Surface waters located in the US 93 Ninepipe/Ronan improvement project corridor.

Waterbody	Location	Crossing Type
Post Creek Hill Segment		
Unnamed Tributary to Post Creek 1	US 93/Red Horn Road, RP 37.2	Culvert
Ashley Creek	US 93, RP 37.4 to 37.8	None - Adjacent
Post Creek	US 93, RP 37.8	Bridge
Unnamed Tributary to Post Creek 2	US 93, West Post Creek Road, RP 37.8 to 38.1	None - Adjacent
Unnamed Tributary to Post Creek 3	US 93, East Post Creek Road, RP 37.8 to 38.1	None - Adjacent
Post F Canal	US 93, RP 38.6	Culvert
17 G-4 Canal[b]	US 93, RP 39.0	Culvert
14G Canal[b]	US 93, RP 39.5	None - Adjacent
Ditch[b]	US 93, RP 39.5	None - Adjacent
Canal[b]	US 93, RP 39.5	Culvert
14G Canal[b]	US 93, RP 39.6 – 39.8	None- Adjacent
Siphon[b]	US 93, RP 39.8	Culvert
Post G Canal	US 93, RP 39.9	Culvert
Ninepipe Segment		
Siphon[b]	US 93, RP 40.2	Culvert
Ninepipe Reservoir	US 93, RP 40.5 to 40.8	Bridge
Post A Canal	US 93, RP 41.5	Culvert
Crow Creek	US 93, RP 44.2	Culvert
Ronan A Canal	US 93, RP 44.2 – 45.1	None - Adjacent
Siphon	US 93, RP 45.1	Culvert
13A Canal[b]	US 93, RP 45.8 – 46.3	None - Adjacent
Ronan Portion		
Ronan A Canal	US 93, RP 46.3	Culvert
Ronan D Canal Siphon	US 93, RP 48.1	Culvert
Ronan Spring Creek	US 93, Main Street, RP 47.0	Culvert

[a] CSKT 2001b.
[b] These surface waters were identified as nonjurisdictional under the USACE regulations. USACE jurisdictional status was determined by project biologists and has not been confirmed by the USACE. Surface waters within the project corridor are also regulated by the CSKT per Aquatic Lands Conservation Ordinance 87A.
RP: Reference post.

A preliminary jurisdictional determination (as regulated by the US Army Corps of Engineers (USACE) was made for each wetland in the project area. MDT would not be responsible for mitigating impacts on non-jurisdictional wetlands for the purposes of securing a Section 404 permit. However, regardless of jurisdiction, Executive Order 11990 requires MDT to account for all wetland losses. Therefore, MDT would ultimately seek to replace all wetlands affected by the proposed project.

Jurisdictional wetlands include those wetlands that meet the definition of a wetland as defined in the *Corps of Engineers Wetlands Delineation Manual* (Environmental Laboratory 1987) and do not fall under any of the criteria for non-jurisdictional wetlands. Non-jurisdictional wetlands in the US 93 Ninepipe/Ronan improvement project corridor consist of isolated wetlands, which are generally pothole wetlands. The following guidelines were used by project biologists in this assessment to determine if a wetland was isolated and non-jurisdictional:

- No apparent surface or wetland connection with any water of the U.S. and not directly adjacent to any water of the U.S.
- No actual link between the water body and interstate or foreign commerce based on the factors mentioned previously.
- Individually and/or in the aggregate, the use, degradation or destruction of the isolated water would have no substantial effect on interstate or foreign commerce, i.e. the wetland does not have a "significant nexus" to navigable waters.

Jurisdictional and non-jurisdictional wetlands in the US 93 project area are identified in Table 1 and are described in greater detail in the *Biological Resources Report: US 93 Ninepipe/Ronan Improvement Project* (Herrera 2005a). The USACE has not yet concurred with the preliminary jurisdictional determinations made by project biologists. A field visit is scheduled for Summer 2006 to confirm the determinations and the final determinations will be provided in the Final SEIS for this proposed project.

2.E.4 Types of Wetland Habitats

Table 1 describes the wetland at each site including the wetland type based on appearance (as described above), Cowardin Class, Hansen Community Type, and Montana Wetland Category. Cowardin Class is based on the *Classification of Wetlands and Deepwater Habitats of the United States* (Cowardin et al. 1979), a descriptive classification with 28 subclasses, based on physical wetland attributes (i.e., vegetation, soils, and water regime). Hansen Community Type describes the wetland vegetation units using habitat types or community types according to *Classification and Management of Montana's Riparian and Wetland Sites* (Hansen et al. 1995). The Montana Wetland Category assesses the functions and values of a wetland using the *Montana Wetland Assessment Method* (MDT 1999).

2.E.5 Timing and Duration of Discharge

The timing and duration of construction activities will depend on the alternative chosen for that specific location and the type of construction (bridge, road widening, road realignment, and culvert installation). Detailed schedules and phasing plans will be prepared during the final design. Construction schedules will be specified to not conflict with spawning and migration periods for fish.

2.F. DESCRIPTION OF DISPOSAL METHOD

The type of disposal methods will depend on the type of construction that is undertaken in a specific location. The following sections describe the general construction methods, which would be used for action alternatives selected to widen the existing US 93 highway, or construct a bridge or culvert in the vicinity of surface waters and wetlands.

2.F.1 Roadway Widening

When widening the highway, it would be necessary to place fill in wetlands that are encountered along the highway. The fill material would be placed in the wetlands by large earth-moving and excavating equipment. The material would likely be from a nearby source (borrow) pits or excess material from other areas in the project corridor. The fill would be necessary to construct the proper side slopes and adjust the elevation of the roadway. Some removal of the existing roadway surface, topsoil, and structures would be necessary. Disposal of the material would be determined prior to construction of the proposed project.

2.F.2 Bridge and Culvert Construction

Where feasible, bridges would be built such that the abutment footings are outside of the active stream channel, effectively spanning the water body. Some bridge piers and abutment footings may use driven piling or drilled shafts, which would result in minimal disturbance to the streambed and banks. Culvert construction would also require excavation in the streambed or wetland to lay the pipe or box culvert.

The existing structures along US 93 will need to be removed. To minimize impacts associated with removal, the Contractor would isolate the construction activities from the stream channel. This can be accomplished using cofferdams or drilled shafts. Cofferdams are temporary structures, which are constructed in the streambed and enclose the construction activities. After they are in place, the creek water trapped within the dam is pumped out to expose the creek-bed and facilitate the excavation and construction activities. The excavated materials and pumped water from within the cofferdams would be transferred to a temporary settling pond to remove the sediment. The sediment would be disposed of in proper locations and the water would be returned to the stream. The locations of the settling ponds would be identified before the construction permits are obtained.

Section 3: Factual Determinations (Section 230.11)

3.A. PHYSICAL SUBSTRATE DETERMINATIONS

3.A.1 Substrate Elevation and Slope

Based on preliminary design, bridge installation would not require changes in channel elevations or slope. Culverts would be installed to match the existing channel elevation and slope where practicable and feasible.

Direct changes to substrate elevation and slope would occur for streams requiring relocation. Ashley Creek and segments of the unnamed tributaries to Post Creek 1, 2, and 3 would require relocation under all action alternatives. Segments of these streams are located within the proposed construction limits for all alternatives and a segment of Ashley Creek flows in a ditch within the existing roadway right-of-way. Stream relocation would avoid changes to natural surface flow patterns and changes in the natural erosion and accretion patterns to the extent feasible. The relocated streams would be configured to match appropriate natural conditions, including substrate elevations and slope.

The daylighting of Ronan Spring Creek is associated with all of the Ronan action alternatives. Daylighting Ronan Spring Creek may change the elevation and substrate of the section of the stream that is daylighted. This daylighting would restore the creek to a more natural condition and is anticipated to have a beneficial effect on the system.

3.A.2 Compare Fill Material and Substrate at Discharge Site

At stream crossings, the substrate varies from system to system including smooth cobbles with areas of sand and silt deposition at Post Creek and fine sediments and organic debris within Ashley Creek and the Unnamed tributaries to Post Creek 1, 2, and 3. The fill placed in streams for culvert installation would be select granular backfill from nearby sources or excess material from the proposed project itself. Some of the fill material may be similar to natural substrate; however, some fill material would not be similar. (Fill may also be whatever is suitable given MDT or AASHTO fill requirements.)

Substrates in wetland areas are fine sediments, organic soils (histosols), or glacial outwash that are common to many wetlands in this area. The fill material placed in the wetlands would either be granular material from nearby sources or excess material from the proposed project itself. Fill material used would be suitable for construction of a roadway.

3.A.3 Dredged/Fill Material

The fill materials used in the stream crossing would be granular materials that are not susceptible to movement by water action. Any fill that is placed in wetlands or streams for the construction of the proposed alignment would be done in a manner to avoid or minimize movement due to erosion.

3.A.4 Physical Effects on Benthos, Invertebrates, and Vertebrates

Physical effects on benthos, invertebrate and aquatic vertebrates would be associated with increased sediment and turbidity levels and are expected to be short-term. Best management practices (BMPs) during construction should minimize these problems.

a) Physical Effects on Benthos

Benthic organisms would be affected along the stream bank or in the wetland area where fill material would be placed. Construction activities can also cause sediment to be washed downstream, where it may affect benthic organisms. In the long term, the benthic organisms would establish themselves in the fill material and recolonize disturbed areas. Therefore, the physical effects on benthos should be short-term, localized impacts.

b) Invertebrates

Similar to the effects on benthos, the impacts to aquatic invertebrates will also primarily be short-term. Fill material placed along the stream bank or in wetlands would bury existing organisms, but new organisms would be expected to quickly re-establish in these areas. Additionally, construction activities could cause localized increases in suspended sediment, which would adversely affect aquatic insects. Increases in suspended sediment would decrease after the placement of fill materials, and effects on invertebrates would be short-term. Increased sediment levels could also clog interstitial spaces in the streambed, which invertebrates use for habitat. However, these interstitial spaces would quickly regenerate when turbidity is abated and “flushing” occurs.

c) Vertebrates

Sediment from the erosion of disturbed areas may adversely affect aquatic vertebrates. For the project area, “aquatic vertebrates” applies primarily to fish. Sediment in streams affects fish by increasing sediment deposits in spawning gravel and rearing habitat. This suffocates the eggs or fry and affects the aquatic organisms that fish rely on for food. Sediment is also abrasive to fish gills. The use of Best Management Practices (BMP) for erosion control should alleviate these adverse impacts or reduce them to short-term and tolerable levels.

3.A.5 Erosion and Accretion Patterns

The existing structures at Ashley Creek and Crow Creek are inadequately sized to handle high-flow conditions. The streams associated with undersized crossing structures experience flooding upstream of the structure during high-flow conditions, causing erosion or deposition and widening of the natural channel. Eroded material may then be deposited downstream, and may potentially, in combination with time and normal sediment transfer, alter the course of the stream.

All of the proposed bridge structures would be wider than the existing crossings. This is proposed to reduce hydraulic constrictions on the stream channel and to improve the hydrologic connectivity of the system (interactions between the stream, its floodplain, and adjacent wetlands). An increase in the bridge opening will allow a greater flow to pass through the bridge opening during storm events. This has the potential to change existing erosion and accretion patterns until the stream system re-equalizes itself. It is anticipated that any erosion and accretion that occurs will be beneficial because the system is being returned to a more natural condition.

3.A.6 Actions Taken to Avoid and Minimize Impacts

This section describes the action taken to avoid and minimize impacts on physical substrates, erosion and accretion patterns and benthos. Actions described in Sections 3.B.5, 3.C.4, and 3.D.5 are also applicable. Measures incorporated into the preliminary design include:

- The proposed preliminary design reviewed the possibility for steepened roadway slopes to minimize impacts on key features in the project corridor. Proposed approximate locations are shown in Appendix A. During final design, the areas will be further investigated to determine if the proposed preliminary design is practicable and feasible. If during final design there are areas that slopes can be safely steepened, they would be incorporated into the proposed project's plans. (Note: Slope steepening would require approval from the MDT Highways Engineer and FHWA through the design exceptions process.) These steeper slopes would reduce the width of the roadway footprint and consequently reduce impacts on wetlands.

- All of the proposed bridge structures would minimize impacts on substrates by opening a greater portion of the floodplain and allowing areas to be restored

- Stormwater treatment measures would be designed to reduce suspended solids from stormwater

- The amount of fill placement in floodplains would be minimized or reduced

- In fish bearing streams, culverts would be designed and installed to accommodate fish passage

- MDT requires that all construction activities within and adjacent to wetlands and streams adhere to the BMPs outlined in the MDT standard specifications and described in the Stormwater Pollution Prevention Plan (SWPPP), which is prepared for all projects disturbing more than 0.4 hectares (1 acre) of land area. The BMPs are required to reduce soil erosion, to reduce site sediment loss, and to manage construction generated wastes.

- The placement of fill will change substrate elevations and contours as necessary to develop a roadway footprint. Compaction of the fill material will be required, resulting in a suitable roadway base that will not be prone to erosion, slumpage, or other movement.

3.B. WATER CIRCULATION, FLUCTUATION AND SALINITY DETERMINATIONS

3.B.1 Water

The US 93 Ninepipe/Ronan SEIS contains a discussion of surface waters and their associated quality. The following sections discuss the proposed action's impact on various components of the water quality. Tables 5.9-1, 5.9-2, 5.11-1, 5.11-2, and 5.12-3 in the Draft SEIS compare the effects of the action alternatives on water resources.

None of the streams located within the US 93 Ninepipe/Ronan Draft SEIS project corridor are listed on the state 303(d) list.

a) Salinity

No site specific tests for salinity have been performed. However, observations of streams and wetlands in the project corridor showed no saline areas. Although velocities are slow, water in wetland areas is continually resupplied and drained away. There are no known impoundment areas where water could be reasonably expected to increase in salinity. Such changes would most likely result from altering the hydraulic regime and interconnection of wetlands and streams or the use of fill materials significantly different from native soils. Neither of these changes are predicted to occur as a result of the proposed action.

b) Water Chemistry

Although no site-specific tests have been performed, there is no reason to suspect that the proposed action would significantly alter the alkalinity, hardness, pH level, or mineral concentration in surface waters.

c) Suspended Sediments

Construction could cause temporary, localized, minor increases in suspended sediments during construction activities, especially near streams where fines in the new fill material are transported from the disposal sites by water currents. Stable, granular fill materials and appropriate construction methods would be used to minimize these impacts.

d) Clarity

During the placement of fill materials in wetlands and streams, there may be temporary, localized increases in turbidity. These increases in turbidity would be very minor compared to the increases, which naturally occur after heavy rainstorms. This short-term impact would be minimal. However, even minor increases that do not occur with a corresponding spike in the hydrograph can be very damaging to aquatic ecosystems (no flushing would occur, and gravels could be smothered, etc.). The use of appropriate erosion control BMPs will help to avoid or minimize temporary, localized increases in turbidity.

e) <u>Color</u>

The placement of fill materials in wetlands and streams could disrupt the substrate and increase the suspended sediments and turbidity in the water. This would have the effect of temporarily and locally altering the color of the waters in the vicinity of the construction activity, especially immediately following the fill placement. This change in color would be similar to the change in color during the spring runoff when high concentrations of sediments from the surrounding drainages give the water a milky color.

f) <u>Odor</u>

The proposed project will not change any natural odors in the streams or wetlands.

g) <u>Taste</u>

The proposed project will not significantly alter the taste of the surface water or the groundwater in the project area precluding any unknown spills or highly abnormal conditions.

h) <u>Dissolved Gas Levels</u>

Improvements are not expected to significantly increase the turbulence of flows, cause stagnation in streams and wetlands, or cause other changes to hydraulic regimes; therefore, it is unlikely that the existing dissolved gas levels will be altered.

i) <u>Nutrients</u>

Current sources of nutrients such as phosphorous and nitrogen predominantly come from non-point agricultural sources, and other naturally occurring high organic loads such as decaying algae. None of these conditions are expected to be affected by the proposed action and since the hydrologic properties of wetlands and surface waters throughout the project area will be maintained or improved, there should be no detrimental impact from nutrient loading.

j) <u>Eutrophication</u>

The proposed action is not expected to contribute significant quantities of sediment or nutrients to project vicinity surface waters or wetlands. The waters that will be affected by the proposed project are primarily streams and wetlands, not lakes. Streams are generally well mixed and plant growth induced by excessive nutrients is generally not a problem in the project corridor, with the exception of the segment of Ashley Creek that flows in a right-of-way ditch. Eutrophication in this system is primarily attributed to adjacent land uses, which include a sawmill. Relocation of this stream may eliminate sources of eutrophication; thereby improving the system. Wetlands are, by their nature, already subject to eutrophication. Since there will be no significant increase in nutrients and the hydrologic properties will be preserved, there are no anticipated impacts from increased eutrophication to most wetlands. However, when small hydrologically isolated wetlands (potholes) are partially filled, eutrophication may occur more rapidly.

3.B.2 Current Patterns and Circulation

a) <u>Current Patterns, Drainage Patterns, Normal and Low Flows</u>

During final design, drainage patterns would be considered and culverts and ditches would be sized and located to adequately convey water and sediment transport. Where appropriate, animal crossings would also be considered.

b) Velocity

The existing structures at Ashley Creek and Crow Creek are inadequately sized to handle high-flow conditions. The streams associated with undersized crossing structures experience flooding upstream of the structure during high-flow conditions, causing erosion or deposition and widening of the natural channel. Eroded material may then be deposited downstream, and may potentially, in combination with time and normal sediment transfer, alter the course of the stream.

All of the proposed bridge structures would be wider than the existing crossings. This is proposed to reduce hydraulic constrictions on the stream channel and to improve the hydrologic connectivity of the system (interactions between the stream, its floodplain, and adjacent wetlands). An increase in the bridge opening will allow a greater flow to pass through the bridge opening during storm events. This has the potential to change existing erosion and accretion patterns until the stream system re-equalizes itself. It is anticipated that any erosion and accretion that occurs will be beneficial because the system is being returned to a more natural condition.

c) Stratification

Proposed improvements are not expected to alter the current stratification of waters in any of the streams or wetlands.

d) Hydrological Regime

All of the bridges that will be replaced under all of the action alternatives will have a larger opening associated with the stream channel. Bridge openings will be widened to span the stream channel, removing any existing constrictions to flow. This will allow greater flows through the structure, especially during a storm event. While this can be considered a change to the hydrologic regime, the overall effect will be to restore the hydrology to a more natural condition.

e) Aquifer Recharge

The proposed action is not expected to have any adverse effect on the quality or extent of any aquifer recharge.

3.B.3 Normal Water Level Fluctuations

Bridge openings and culverts would be designed to accommodate normal water level fluctuations. Consideration will be given during final design so that disruption of movement of aquatic life indigenous to the waterbody will be minimal. This includes designing culverts to ensure the passage of fish.

3.B.4 Salinity Gradients

There are no salinity gradients in the project corridor; therefore, salinity gradients will not be affected.

3.B.5 Actions Taken to Avoid and Minimize Impacts

This section describes actions taken to avoid and minimize impacts on water circulation, fluctuations, and water levels. Actions described in Sections 3.A.6, 3.C.4, and 3.D.5 are also applicable.

Under all action alternatives, stream and associated floodplain openings at the Post Creek, Ninepipe Reservoir, and Crow Creek crossings would be increased, and the existing roadway fill removed, improving conveyance and floodplain storage.

Under all of action alternatives the proposed structures would increase the percentage of floodplain spanned over the No-Action Alternative. Under all of the action alternatives the proposed structure at the Niinepipes Reservoir would span 100 percent of the existing floodplain and would require no net fill. In addition, under Alternative Rural 7 the proposed structure at Cow Creek would span 100 percent of the existing floodplain, and would require no net fill. For sites where floodplain fill may occur, the quantity of fill in the floodplain would be determined during final design and opportunities to remove fill from the affected floodplain would be sought, so that no net increase in floodplain fill and no net loss in floodplain storage capacity would occur.

Bridge and culvert openings would be sized to accommodate natural water level fluctuations.

3.C. SUSPENDED PARTICULATE/ TURBIDITY DETERMINATIONS

3.C.1 Expected Changes in Suspended Particulate and Turbidity Levels in the Vicinity of the Disposal Site

The placement of fill at stream channel crossings may introduce some fine materials to surface waters, which would cause temporary increases in the level of suspended particulates during construction. The placement of fill may re-suspend bottom sediments. As a result, turbidity levels may temporarily increase in the vicinity of stream or wetland encroachments.

Stormwater runoff from areas in the vicinity of streams and wetlands can also transport sediment to the surface waters. This would result in an increase in suspended particulates and turbidity levels. Refer to Section 4 Actions Taken to Avoid and Minimize Impacts for measures that would reduce sediment transported from stormwater runoff.

3.C.2 Effects on Chemical and Physical Properties of the Water Column

a) Light Penetration

Increased levels of suspended particulates and turbidity in the surface waters near the construction site can also decrease the amount of light penetration. These impacts would be short-term and would occur only temporarily during construction activities.

b) Dissolved Oxygen

The suspended particulates introduced to the surface waters by the placement of soil will be for the most part inorganic. Therefore, no additional Biochemical Oxygen Demand (BOD) should occur. In addition, the proposed action should not result in any increased turbulence or stagnation of the surface waters to the point of affecting the dissolved oxygen levels.

c) Toxic Metals and Organics

Since the fill materials used for construction will be suitable for highway construction, it should be free of high organic content and toxic metals. No material used for fill within the aquatic ecosystem will be taken from any hazardous material site identified in the Hazardous Material Section of the draft SEIS. Any identified contamination areas within the corridor would be removed and disposed of or treated at locations designed for hazardous material management.

d) Pathogens

There are no known major sources of viruses or pathogenic organisms in the project area, although livestock and wildlife waste is evident in places throughout the corridor. The use of clean, inorganic fill material would prevent the introduction of pathogens in surface waters. Whirling disease has been detected in the Mission Creek watershed, which encompasses Ashley Creek, Post Creek, and the unnamed tributaries to Post Creek. The history of botulism in wetlands associated with the project area is not known.

e) Aesthetics

The proposed project would affect the aesthetics of surface water in the project area in a condition similar to the spring runoff conditions, albeit at a reduced scale. The effects would be temporary, localized, and occur near or just downstream of the actual construction activities. The expected impacts are the increased suspended particulate levels in the surface waters near the placement activity, which should disperse as the distance from the source increases.

3.C.3 Effects on Biota

a) Primary Production, Photosynthesis

The proposed project should not substantially lower the rate of photosynthesis and primary productivity in surface waters. As indicated in the previous section, changes in suspended particulates and turbidity levels are expected to be localized and temporary. These conditions should not be significant enough to affect the level of dissolved oxygen in the surface waters.

b) Sight Feeders

Sight feeders rely on clear water to find their food. Therefore, they would be affected by the short-term, localized increases in suspended particulates and turbidity due to the placement of fill materials. Similar to filter feeders, excessive sediment can bury these organisms, abrade their gills, and damage their habitat. Suspended particulates and turbidity should rapidly diminish after the actual placement of fill materials, allowing quick recovery for sight feeders.

3.C.4 Actions Taken to Avoid and Minimize Impacts

Actions taken to avoid and minimize impacts on suspended particulate/turbidity are described below. The actions described in Sections 3.A.6, 3.B.5, and 3.D.5 are also applicable.

MDT and the contractor would obtain an NPDES General Permit for Discharge from Large and Small Construction Activities regulated by U.S. EPA and CSKT to control sediment discharge and erosion during construction projects. This permit is required to protect water quality and requires the completion of a SWPPP. The SWPPP requires a description of BMPs and stormwater management controls appropriate for the construction site including measures to reduce soil erosion, reduce site sediment loss, and manage some of the more common construction-generated wastes and construction-related toxic materials. Appropriate BMPs for the project site would be selected from the current version of Erosion and Sediment Control Best Management Practices: Reference Manual, prepared for MDT and in place at the time final designs are completed. At a minimum, these BMPs would include the following provisions:

- Minimize area and duration of vegetation and soil disturbance, stabilize site soils, and revegetate areas of construction disturbance

- Prevent and control excessive discharge of sediment from site
- Prevent and control excessive wind erosion
- Control and minimize off-site tracking of sediments.

As stated previously, stormwater facilities would be included in the final design for the proposed project to reduce the long-term impact of roadway runoff pollutants on sensitive receiving waters. Stormwater facilities would be maintained to ensure their continued intended function.

3.D. AQUATIC ECOSYSTEM AND ORGANISM DETERMINATIONS

3.D.1 Effects on Special Aquatic Sites

a) Sanctuaries and Refuges

The US 93 Ninepipe/Ronan project crosses through the Ninepipe National Wildlife Refuge (Refuge). All alternatives would require placement of fill within the wetlands within the existing right-of-way through the Refuge, with the exception or Rural 7, which would not require wetland fill in the Refuge. Only Alternatives Rural 8 and 9 would require acquisition of lands from the Refuge for right-of-way needs. Alternatives Rural 8 and 9 would also require slightly more placement of wetland fill than the other action alternatives.

It is not anticipated that the placement of fill will adversely affect the breeding, spawning, migratory movement or other critical life requirements of resident or transient fish and wildlife resources within the Ninepipe National Wildlife Refuge. The placement of fill will not result in any unplanned, easy and incompatible human access to remote aquatic areas within the refuge nor create the need for frequent maintenance activities. The placement of fill does have the potential to result in the establishment of invasive plant species within the existing right-of-way. This can be minimized through the use of approved BMPs and standard MDT maintenance practices. It is not anticipated that the placement of fill will result in a change in resource needs by fish and wildlife that would require changes to refuge management practices. However, a beneficial impact common to all of the action alternatives would be improved hydrologic connectivity of wetlands within the Refuge along US 93.

The analyses contained in Section 3.A, 3.B, and 3.C are also relevant to the evaluation of these factors within the Refuge.

b) Wetlands

The estimated total amount of wetlands occurring within the project area is detailed in Table 1. Only those wetlands completely or partially located within the proposed project right-of-way were delineated. There are a variety of wetland resources in the project vicinity that are not within the proposed project right-of-way.

Table 3 (Impacts by Wetland Type – Rural) identifies the anticipated wetland impacts by wetland type in the rural portion of the proposed project. Table 4 (Estimated Impacts by Wetland Type – Ronan) identifies the anticipated wetland impacts by wetland type in the Ronan segment of the proposed project.

Table 3. Estimated wetland impacts in hectares (acres) by wetland type in the rural portion of the US 93 Ninepipe/Ronan project corridor [a].

Alternative	Estimated Impacts by Wetland Type in hectares (acres)							
	Riparian	Pothole Wetlands			Irrigation Features	Roadside Ditches	Ninepipe Reservoir	Total
		Group 1	Group 2	Group 3				
No Action	0.0	0.0	0.0	0.0	0.0	0.0	0.0	**0.0**
Rural 1	2.5 (6.2)	1.8 (4.1)	0.6 (1.6)	0.1 (0.3)	1.0 (2.5)	2.0 (5.0)	1.5 (3.6)	**9.5 (23.3)**
Rural 2	2.5 (6.2)	1.7 (4.1)	0.6 (1.6)	0.1 (0.3)	1.1 (2.6)	2.0 (5.0)	1.5 (3.6)	**9.5 (23.4)**
Rural 3	2.5 (6.2)	1.7 (4.1)	0.6 (1.6)	0.1 (0.3)	1.1 (2.8)	2.2 (5.4)	1.5 (3.6)	**9.7 (24.0)**
Rural 4	2.7 (6.6)	1.8 (4.3)	0.6 (1.6)	0.1 (0.3)	1.1 (2.8)	2.2 (5.4)	1.5 (3.6)	**10.0 (24.6)**
Rural 5	2.7 (6.7)	1.8 (4.4)	0.7(1.7)	0.1 (0.3)	1.1 (2.8)	2.0 (5.0)	1.5 (3.6)	**9.9 (24.5)**
Rural 6	2.7 (6.6)	1.6 (4.3)	0.9 (2.3)	0.2 (0.4)	1.5 (3.6)	2.1(5.1)	1.5 (3.6)	**10.5 (25.9)**
Rural 7	2.2 (5.4)	0.3 (0.8)	0.8 (1.9)	0.1 (0.2)	1.1 (2.6)	2.0 (5.0)	0	**6.4 (15.9)**
Rural 8	3.1 (7.7)	2.6 (6.2))	1.0 (2.4)	0.2 (0.6)	1.1 (2.7)	2.0 (4.9)	1.7 (4.2)	**11.7 (28.7)**
Rural 9	3.6 (8.8)	5.5 (13.5)	1.5 (3.6)	0.2 (0.6)	1.3 (3.3)	2.2 (5.4)	2.4 (6.0)	**16.7 (41.2)**
PPA	2.5 (6.2)	1.8 (4.1)	0.6 (1.6)	0.1 (0.3)	1.1 (2.8)	2.0 (5.0)	1.5 (3.6)	**9.6 (23.6)**

Source: US 93 Ninepipe/Ronan Improvement Project SEIS.
[a] These preliminary estimates represent the area of wetland within the proposed project right-of-way that would be temporarily affected by construction and filled post-construction.

Table 4. Estimated impacts in hectares (acres) by wetland type in the Ronan segment of the US 93 Ninepipe/Ronan project corridor.

Alternative	Estimated Impacts by Wetland Type in hectares (acres)						
	Riparian	Potholes			Irrigation Features	Roadside Ditches	Total
		Group 1	Group 2	Group 3			
No Action	0	0	0	0	0	0	0
Ronan 1	0.004 (0.01)	NA	0	NA	0.004 (0.01)	NA	0.01 (0.02)
Ronan 2	0.01 (0.02)	NA	0	NA	0.004 (0.01)	NA	0.01 (0.03)
Ronan 3	0	NA	0.01 (0.02)	NA	0.004 (0.01)	NA	0.01 (0.03)
Ronan 4	0	NA	0.01 (0.02)	NA	0.004 (0.01)	NA	0.01 (0.03)
Ronan 5	0	NA	0	NA	0	NA	0

Impacts on wetlands within the project corridor vary between the 10 different rural action alternatives and the 5 different Ronan action alternatives. Table 5 (Estimated Total Wetland Impacts) identifies the estimated wetlands impacts for each rural action alternative, urban action alternative, and the No-Action Alternative.

Impact avoidance and minimization measures as well as compensatory mitigation is discussed in Section 3.D.5 of this evaluation.

c) Mud Flats

There are no mud flats in the project area, and the proposed project will not create any new mud flats.

d) Vegetated Shallows

These are areas that are permanently inundated and support rooted, aquatic vegetation. These areas are generally classified as wetlands. There are no vegetated shallows in the project corridor, and the proposed project will not create any new vegetated shallows.

Table 5. Total Estimated Wetland Impacts.

Alternative	*Total Estimated Wetland Impacts in hectares (acres)*
No-Action	0.00 (0.00)
Rural 1	9.5 (23.3)
Rural 2	9.5 (23.4)
Rural 3	9.7 (24.0)
Rural 4	10.0 (24.6)
Rural 5	9.9 (24.5)
Rural 6	10.5 (25.9)
Rural 7	6.4 (15.9)
Rural 8	11.7 (28.7)
Rural 9	16.7 (41.2)
PPA	9.6 (23.6)
Ronan 1	0.01 (0.02)
Ronan 2	0.01 (0.03)
Ronan 3	0.01 (0.03)
Ronan 4	0.01 (0.03)
Ronan 5	0.00 (0.00)

e) Riffle and Pool Complexes

Riffle and pool complexes occur when the gradient of the stream channel varies from steep to shallow. Within the project corridor, Post Creek is the only stream with riffle and pool complexes. The habitat within the project corridor is mainly riffle habitat with lateral scour pools and deeper pools under the Post Creek bridge on US 93. Post Creek is a tributary to Mission Creek which is part of the larger Lower Flathead River Watershed.

The primary potential impacts on riffle and pool complexes within the Post Creek channel would occur during removal of the existing bridge. Cofferdams may be installed to isolate the existing bridge abutments from the stream channel during their removal. Cofferdams are described in Section 2.F.2. After the existing bridge structure is removed the stream channel would be stabilized to maintain its current alignment and configuration and impacts on the existing riffle and pool complexes are not expected.

3.D.2 Effects on Threatened and Endangered Species and Their Habitats

The *Biological Assessment: US 93 Ninepipe/Ronan Improvement Project* (Herrera 2005b) has been submitted to the USFWS and the Federal Highway Administration and MDT has since completed the formal consultation process for the proposed project. The USFWS issued their biological opinion on August 29, 2005.

Nine listed species may occur in the project area: however, for several species, there is no suitable habitat and they are not known in the project area. These species include Ute ladies'-tress, water howellia, slender moonwort, Canada lynx, and Spalding's catchfly. Therefore, these species are not further addressed in this section. Grizzly bear, bald eagle, gray wolf, and bull trout also may occur in the project area or there is suitable habitat for theses species in the project corridor. Additional information on these species is provided below.

a) Bald Eagles

The greatest level of use of the project area is by wintering bald eagles. Many of the wintering birds are pairs that nest along Flathead Lake and the lower Flathead River and remain in the valley near their territories throughout the winter. Wintering bald eagles have been observed perching in the black cottonwood trees on the west-side of the corridor at RP 41.4, station 673+20. Wintering bald eagles are found throughout the valley in the early part of the winter season before freeze up (December). After freeze up, eagles congregate in areas with open water, such as Post Creek, Ninepipe Reservoir, and Flathead Lake, to prey on waterfowl, particularly coots. Around mid-February, when the calving season starts, eagles are distributed throughout the valley, foraging on after-birth.

A pair of nesting bald eagles occurs in the project vicinity, approximately 0.8 kilometers (0.5 miles) from the project corridor. This nesting pair primarily forages near their nest, but may also range over the project corridor onto the Ninepipe Reservoir (Morrison-Maierle 1995; Becker 2003b personal communication).

No direct effects on nesting bald eagles are expected as a result of the proposed project. The nest site is a sufficient distance from the corridor that construction activities are not expected to disrupt nesting activities.

The wintering period for bald eagles is generally between October 31 and March 31. Construction activities also typically shut down for the majority of this time period, although this may vary from year to year. Generally, a wide range of foraging opportunities are available to eagles until the freeze up period in the winter season. Construction in the winter season, prior to freeze up, may cause eagles to avoid the immediate project corridor, but construction is not expected to preclude them from foraging opportunities. Most construction activities would cease during the freeze up period in the winter season, therefore no effect on wintering bald eagles is expected during this time period. Construction may resume once the region has largely thawed, but by this time eagles are expected to be returning to their nesting territories, therefore are not anticipated to be affected by construction activities.

The *Biological Assessment: US 93 SEIS Ninepipe/Ronan Improvement Project* (Herrera 2005b) provides additional analysis of indirect and cumulative impacts, interrelated and interdependent actions, and coordination measures to minimize impacts to bald eagles. The USFWS concurred that the proposed project may affect but is not likely to adversely affect bald eagles.

b) Grizzly Bears

The project corridor is located on the western front of the Northern Continental Divide grizzly bear recovery area, which roughly corresponds with the northern Rocky Mountain Range. While the project corridor is not located within the recovery area, grizzly bears range into the Ninepipe/Ronan area in the spring (May 30) through late fall (end of October) (Becker 2003c personal communication).

The Ninepipe/Ronan area provides a variety of foraging opportunities including eggs, small mammals, succulent aquatic vegetation and tubers. In summer 1998, a bear was observed foraging at the reservoir edge after the water had receded and was later determined to have been foraging on snails (Becker 2003a personal communication). There is some evidence that bears are particularly attracted to the area when mouse populations in the wildlife management grasslands are peaking, approximately every five years.

The habitat appears to provide an escape area for young dispersing males or females with cubs evading aggressive male bears. The number of grizzly bears in the area is highly variable and generally ranges from 1 to 4 individuals. Grizzly bears likely access the area from the Mission Mountains via the Post Creek riparian area and perhaps the Crow Creek riparian area. Once they are in the area, many bears are compelled to cross US 93. In addition, bears reported in the Moiese Hills west of Charlo likely cross US 93 in the Ninepipe/Ronan area. One grizzly bear has been struck and killed in the Ninepipe/Ronan area in the last 5 years. Two were killed in the Post Creek vicinity in the same general location in 2001 and 2002.

Some bears in the Ninepipe/Ronan area appear to use the habitat around the refuge without dispersing much farther west. There is limited habitat available west of the project vicinity, and the risk of human-bear conflicts is greater.

Effects of the action alternatives on grizzly bears include an increased risk of human-bear conflicts during construction, disturbance of foraging habits during construction, minor loss of habitat, a potential decrease in habitat value for some areas adjacent to the corridor, a period of continued mortality on the roadway until bears learn to use the new structures, and an impediment to grizzly bear movement through the corridor for some individual bears.

All of the action alternatives would require temporary construction staging areas, including offices and lodging, which may attract bears if food is not properly stored and disposed. Alternatives with wider lane configurations (Alternative Rural 8 and Alternative Rural 9) may require slightly longer to construct and so staging areas may be required for a longer period of time. However, contractors and construction crews would be instructed on the need and techniques for proper sanitation in grizzly bear habitat, and all grizzly bear sightings would be reported to Tribal Wildlife Program biologists.

Construction activities in the project corridor may cause grizzly bears to avoid foraging habitats near construction sites. Alternatives with wider lane configurations (Alternative Rural 8 and Alternative Rural 9) would disturb a larger area and may deter bears from a greater area of habitat. Construction of the raised parkway under Alternative Rural 7 would likely require a longer construction period to complete than the other alternatives due to the extended length of raised roadway and subsequent removal of the existing roadway, which may deter bears for a longer period of time than required for the other action alternatives. Because the habitat in the project area does not represent key habitat for the survival of bears in the region and use of the area is highly variable and unpredictable from year to year, disruption of grizzly bear access to project area habitats is expected to have a minor effect on bears (Becker 2003a personal communication).

Large amounts of roadway fill would be removed below the raised parkway to restore and reconnect habitat and would require extensive hauling to dispose of the excavated material. Disposal locations have not yet been identified. Alternative Rural 7 is expected to generate the greatest amount of fill requiring disposal, which may cause additional impacts on bears depending on the location of offsite disposal. As long as disposal sites are not in or near habitats frequented by bears, i.e., apple orchards, riparian corridors, or the Ninepipe National Wildlife Refuge, activities at disposal sites would not have a substantial effect on bears.

The proposed project would result in the minor loss of habitat areas in the corridor that may support use by bears. Bears are most likely to use the wildlife management grasslands, fruit trees, and some wetlands with tuberous species. Therefore, action alternatives with the greatest impacts on wetlands and wildlife management grasslands would have the greatest effect on grizzly bears (Alternatives Rural 8 and 9). Although the Preliminary Preferred Alternative includes a passing lane in a portion of the Ninepipe segment, construction would mostly occur within the existing right-of-way, and few new areas of grassland would be directly affected. Loss of habitat in the project area would likely have a minor effect on bears given the nature of their use of the area (limited and highly variable from year to year). Further, this habitat does not represent key habitat important for the survival of bears in the region (Becker 2003a personal communication). Because bears generally avoid roadways, a greater area of habitat would be reduced in value with the operation of a wider roadway surface. This impact would be greatest for the wider lane configuration (Alternatives Rural 8 and 9) because the zone of influence would comprise a greater area.

Under existing conditions, bears must cross over the roadway to access habitats on the west side of the corridor. Some bears appear to regularly cross the US 93 corridor in the Ninepipe area. Direct effects of roadway projects usually include a contribution to the impediment of wildlife movement through the road corridor and increased risk of mortality associated with wildlife/vehicle collisions. However, the proposed action includes several wildlife crossing areas aimed at reducing fragmentation of habitats in the project area, facilitating wildlife movement through the corridor, and preventing wildlife/vehicle mortality. The effectiveness of these structures in reducing or preventing grizzly bear/vehicle mortality and providing grizzly bears access to habitats on the other side of the roadway is unknown. In Canada, researchers have documented limited use of crossing structures underneath the Trans Canada Highway and grizzly bears have been observed digging under fencing or circumventing fencing to cross over the roadway (Clevenger 1998; Gibeau and Heuer 1996). Similar results were presented in Florida, where black bears preferred to cross roadways beyond the fenced areas (Roof and Wooding 1996).

The proposed project does not include fencing in the Ninepipe segment, so bears would not be precluded from crossing over the roadway. Therefore, at least in the near-term as bears learn to use the crossing areas, the level of risk of bear/vehicle mortality may not change. However, as traffic levels in the corridor increase, the barrier effect of the road is likely to increase, deterring more individuals from attempting to cross over the road and further disrupting movement patterns. Conversely, this deterrence would also likely reduce the level of mortality for all wildlife in the corridor.

Several structures in the project corridor would be located on protected lands managed specifically for wildlife, further improving the potential for their use by bears. Alternatively, if bears are attracted to the wildlife crossing structures, more individuals may choose to access habitats on the west side of the corridor, which could render them susceptible to human-bear conflicts. In general, the CSKT Wildlife Program tries not to influence or encourage bear movements to the west side of the corridor, because habitat quality is low and there is an increased risk of human-bear conflicts (Becker 2003a personal communication).

Because of the wide range of variables (traffic levels, quality of habitat, structure type and length, proximity of human threats or threats by adult male bears, availability of cover, etc.) that influence a bears decision to cross a road corridor or use a crossing structure (bridge or culvert) it is not possible to predict the optimum structure for grizzly bear or other wildlife use in the project corridor. All of the major structure options proposed for the action alternatives, including those proposed for the Preliminary Preferred Alternative, include a range of structure types (short bridges, extended bridges, and enlarged culverts) to accommodate passage by large animals.

The *Biological Assessment: US 93 SEIS Ninepipe/Ronan Improvement Project* (Herrera 2005b) provides additional analysis of indirect and cumulative impacts, interrelated and interdependent actions, and coordination measures to minimize impacts to grizzly bears. The USFWS determined that the proposed project would not be likely to jeopardize the continued existence of the North Continental Divide Ecosystem population of grizzly bears.

c) Gray Wolf

There are no known den or rendezvous sites in the project corridor and no packs are present in the project vicinity (Soukkala 2001 personal communication; USFWS et al. 2002). Wolves are reported sporadically in the Flathead Valley, although most observations are reported from the vicinity of MT

200 or the base of the Mission Mountains (Becker 2003a personal communication; Soukkala 2001 personal communication).

Wolf use of the Ninepipe Area is not reported (Becker 2003a personal communication; Soukkala 2001 personal communication). Wolves do cross the US 93 corridor and are primarily reported to cross in the Evaro area. However, wolves could use the Post Creek riparian area as a travel corridor and attempt to cross the US 93 corridor at that location.

Construction of the action alternatives would not directly affect wolf packs or denning activities as there are no reports of this type of activity in the project area. Individual wolves may enter the Post Creek area to cross US 93, but crossings by wolves in this area are not currently reported. Construction activities for all action alternatives may deter wolves from the project area should an individual attempt to cross the highway corridor within the Post Creek riparian area.

Gray wolves are not reported to cross the US 93 corridor in the US 93 Ninepipe/Ronan project area; therefore, operation of the action alternatives is not expected to affect wolves. Further, should gray wolves pursue opportunities to cross the US 93 corridor in the project area, proposed crossing structures would facilitate their ability to make a safe and secure crossing.

The sizes and locations of the proposed crossing structures were determined based on structures that are functioning in other locations for similar target species. Therefore, all of the proposed structure options meet the minimum requirements to facilitate wildlife movement through the corridor for the species targeted for the crossing site.

d) Bull Trout

Bull trout may occur in the project area in Post Creek. Historically the Mission Creek drainage, including Post Creek, was one of the most important spawning tributaries for bull trout residing between Flathead Lake and the Clark Fork River (CSKT 2000).

There is little information available on the life history of bull trout residing in Post Creek. It is assumed that bull trout using Post Creek have always been of the migratory form (CSKT 2000). McDonald Reservoir, located at the headwaters of Post Creek, currently supports an isolated, migratory population of bull trout. This population spawns in Post Creek above the reservoir. Redd counts have averaged 23 redds per year since 1986 (MBTSG 1996).

Actual occurrence within Post Creek below the reservoir is not well known. Electroshocking of the mainstem of Post Creek has produced very few bull trout, and less than 50 individuals are assumed to use the stream (CSKT 2000). In general, numbers are thought to increase from the mouth of the creek to the headwaters near McDonald Reservoir (Evarts 2003 personal communication). It is not known if the bull trout present are a result of outmigration from McDonald Reservoir, migrants from the Jocko River population that have entered through the Pablo feeder canal (the Pablo feeder canal is an irrigation canal that intercepts numerous streams in the project vicinity and may transport fish from other systems into Post Creek), or individuals migrating from the Flathead River. Captures of bull trout immediately below the dam suggest that the McDonald Reservoir population exports individuals into Post Creek, but the low numbers found in the stream suggest that bull trout are not successfully spawning below the reservoir (CSKT 2000). Three individuals were captured in 1984 and 1985 moving from the Flathead River into Mission Creek (USDOE 1986), but movement into Post Creek was considered unlikely due to degraded water quality in the lower reaches. There is not enough information to determine the status of the species in Post Creek below the dam, but occurrence of small numbers within the project reach is assumed. Little spawning and rearing habitat occurs in the area of US 93 and use of the stream in this area is most likely limited to migration.

The primary effects of construction on bull trout for all action alternatives are associated with construction of the wildlife crossing structures at Post Creek. The risk of increased deposition of eroded sediments in Post Creek and its tributaries would be greatest for Alternative Rural 7, followed by the other rural action alternatives. This is attributed to the extent of roadway fill that would be removed to construct the multi-span structures. Implementation of BMPs and erosion control methods would reduce but not eliminate sediment input to Post Creek during construction.

The *Biological Assessment: US 93 SEIS Ninepipe/Ronan Improvement Project* (Herrera 2005b) provides additional analysis of indirect and cumulative impacts, interrelated and interdependent actions, and coordination measures to minimize impacts to bull trout. The USFWS determined that the proposed project would not be likely to jeopardize the continued existence of the Columbia Basin distinct population segment of bull trout.

3.D.3 Effects on Other Animals

The assorted grasslands, wetlands, and uplands in the US 93 SEIS Ninepipe/Ronan project corridor provide excellent habitat for a diversity of mammals, birds, amphibians, and fish species.

The primary effects on animals will result from construction activities. Increased noise, increased human activity, vegetation removal, and operation of large equipment during construction would result in the displacement or elimination of wildlife within the project corridor and adjacent suitable habitats. Roadway reconstruction would also result in the direct loss of upland and wetland wildlife habitat. The majority of habitat affected is within the right-of-way and is already of lesser value to wildlife. The expected benefits of the proposed project for animals include: reduced fragmentation of upland and wetland habitats in the road corridor; reduced mortality of terrestrial wildlife from vehicular collisions; and increased crossings of the road corridor by wildlife.

Four rare species of birds and one rare species of fish are known to occur within the vicinity of the project area. The common loon has been observed in the project area, but there are no known nesting loons present. The Caspian tern has been observed in the project area, but there are no known breeding terns present. It is anticipated that impacts to both of these species will be limited to avoidance of the project area due to construction activity disturbance. Forster’s tern is the only animal species of concern nesting in the project area and, in some years, is reported to use the small islands adjacent to the Ninepipe Reservoir bridge on US 93. Initiation of construction activities during the nesting period could cause adult terns to abandon their nest, resulting in the loss of that year’s young. Trumpeter swans do not nest in the project area and areas where they are currently concentrating are a sufficient distance from the corridor that construction activities for all action alternatives are not expected to affect them (Becker 2003a personal communication).

Westslope cutthroat trout are not known to occur in the project area, but are present in the headwaters of Crow Creek. If these species are present downstream of the project corridor, they could be affected by sediment loading and increases in turbidity.

The *Biological Resources Report: US 93 Ninepipe/Ronan Improvement Project* (Herrera 2005a) provides additional information on project area animals and their habitat.

3.D.4 Effects on Terrestrial Plants

Portions of plant communities will be lost as a result of wetland filling, which will locally reduce forage production and photosynthesis (primary production). This reduction will have a negligible impact on wildlife and livestock given the small acreage of plant communities that will be disturbed or destroyed, and the dispersal of the disturbance sites throughout the corridor.

Surveys for 14 rare plants were conducted in July 2002 and results were reported in *Rare Plant Survey: US 93 Ronan to St. Ignatius* (Ecosystem Research Group 2002). Only one rare species was identified in the project corridor: Oregon checker-mallow. All of the action alternatives will have a direct impact on identified populations. It has been recommended that where impacts on these plants are unavoidable, they should be excavated, preserved, and replaced after construction.

Increases in disturbed roadside areas from increases in right-of-way may provide additional habitat for noxious or invasive weeds. Exposed soils in uplands or wetlands would be susceptible to colonization by noxious and invasive weeds.

3.D.5 Actions Taken to Avoid and Minimize Impacts

This section summarizes actions taken to avoid and minimize impacts on aquatic ecosystems and organisms. The actions summarized in Sections 3.A.6, 3.B.5, and 3.C.4 are also applicable.

a) Avoidance and Minimization Measures Included in Design

Numerous measures have been incorporated into the preliminary roadway design to minimize impacts on wetland habitats in the project corridor. These measures include:

- All of the proposed wildlife crossing structures would enhance fisheries resources by opening a greater portion of the floodplain and allowing areas to be restored, which would improve hydrologic connections and provide greater vegetative cover on the stream banks and in riparian wetlands.

- The proposed preliminary design reviewed the possibility for steepened roadway slopes to minimize impacts on key features in the project corridor. Proposed approximate locations are shown in Appendix A. During final design, the areas will be further investigated to determine if the proposed preliminary design is practicable and feasible. If during final design there are areas that slopes can be safely steepened, they would be incorporated into the proposed project’s plans. (Note: Slope steepening would require approval from the MDT Highways Engineer and FHWA through the design exceptions process). These steeper slopes would reduce the width of the roadway footprint and consequently reduce impacts on wetlands.

- The proposed project would add culverts and increase bridge lengths and culvert sizes at major wetland and stream crossings to improve hydrologic connections.

- Retaining walls are proposed in the preliminary design through the center of the two kettle ponds to minimize impacts.

- The proposed project would implement wetland and stream restoration at wildlife crossing structures.

b) Additional Mitigation Measures Required

MDT requires that all construction activities within and adjacent to wetlands adhere to the BMPs outlined in the MDT standard specifications and described in the SWPPP, which is prepared for all projects disturbing more than 0.4 hectares (1 acre) of land area.

The MDT standard specifications place numerous restrictions on the contractor's activities in an attempt to avoid and minimize impacts on aquatic resources. For example, avoidance is achieved by limiting certain activities to upland areas rather than wetlands when feasible.

Minimization of impacts is achieved in many ways including limiting the total area that may be disturbed at any one time and seeding exposed soils as soon as practicable after work is complete, which minimizes the potential for increased deposition of eroded sediments in wetlands.

MDT and their contractor are required to prepare a SWPPP to be implemented during construction. This plan requires a description of BMPs to reduce soil erosion, to reduce site sediment loss, and to manage construction generated wastes, thereby reducing the risk to water quality in project area wetlands.

Additional mitigation measures can be added to the special provisions for the contractor to minimize project impacts on wetlands and streams including the following:

- Install preservation fencing to prevent unnecessary vegetation clearing and minimize intrusion into surrounding habitats

- Conform to the invasive weed plan prior to initiating any construction activity

- Where appropriate, salvage wetland vegetation from construction areas and store for use in revegetation activities.

- Work in project area streams would comply with appropriate work windows as determined by the United States Fish and Wildlife Service (USFWS) and CSKT biologists.

Permits for unavoidable placement of fill in wetlands would be required from CSKT under the Aquatic Lands Conservation Ordinance 87A and from the USACE, under Section 404 of the federal Clean Water Act. As part of the permitting process, compensatory mitigation is required to compensate for unavoidable impacts. Where impacts are unavoidable, mitigation could be provided by creating, enhancing, and/or restoring wetland habitat of a similar type and function to what was lost. The USACE requires that all wetland impacts be compensated at a minimum ratio of 1:1 for restoration and creation of wetlands. The USACE does not regulate impacts on isolated wetlands (i.e., those wetlands that are hydrologically isolated from waters of the United States). The CSKT Shoreline Protection Office regulates activities that have the potential to impact surface waters and wetlands of the Flathead Indian Reservation. The CSKT Shoreline Protection Office requires unavoidable impacts on wetlands to be compensated at a greater than 1:1 ratio by preserving, restoring, creating, or enhancing wetlands. Regardless of jurisdiction, Executive Order 11990 requires MDT to account for all wetland losses. Therefore, MDT would ultimately seek to replace all wetlands affected by the proposed project.

3.D.6 Compensatory Actions Taken to Minimize Impacts

Permits for unavoidable placement of fill in wetlands would be required from CSKT under the Aquatic Lands Conservation Ordinance (ALCO) 87A and from the USACE, under Executive Order 11990, and section 404 of the federal Clean Water Act. As part of the permitting process, compensatory mitigation is required when avoidance or minimization is infeasible through project design. Where impacts are unavoidable, mitigation could be provided by creating, enhancing, and/or restoring wetland habitat of a similar type and function to what was lost. The Corps of Engineers requires that all wetland impacts be compensated at a ratio of 1:1 for restoration and creation of wetlands. The USACE does not regulate impacts on isolated wetlands (i.e., those wetlands that are hydrologically isolated from waters of the United States). The CSKT ALCO program regulates all wetland types on the reservation. Regardless of jurisdiction, Executive Order 11990 requires MDT to account for all wetland losses. Therefore, MDT would ultimately seek to replace all wetlands affected by the proposed project.

Compensation for unavoidable impacts to wetlands would involve mitigation activities to develop wetland credits to offset the impacts. A wetland mitigation effort is underway for the remainder of the US 93 Evaro to Polson corridor and it could be used as a model for the proposed project. Onsite opportunities for wetland mitigation, such as those associated with the proposed crossing structures, could be pursued first to increase permeability across the roadway corridor, restore wetland systems, and restore overall wetland connectivity in the project area. CSKT planting plans for areas at wildlife crossings would include appropriate (shade-tolerant) species for planting adjacent to any bridges. Offsite wetland mitigation opportunities could be pursued if additional replacement wetlands are needed after all onsite mitigation opportunities are considered. Offsite wetland mitigation sites established through wetland mitigation reserve agreements between CSKT and MDT for the US 93 Evaro to Polson may provide suitable offsite mitigation for the proposed project as well.

3.D.7 Monitoring of Mitigation Actions

Monitoring and maintenance of mitigation sites would be completed in accordance with the standard MDT Monitoring Plan.

3.E. POTENTIAL EFFECTS ON HUMAN USE CHARACTERISTICS

Access to the Ninepipe recreational fishing access would be temporarily affected during construction. No long-term effects on fishing grounds as habitat are expected.

The proposed project will not adversely affect municipal, private, or potential water supplies. Private wells are used for domestic and agricultural purposes within the project area. The proposed action will not affect the quality or productivity of these water supplies.

While the proposed project may require the acquisition of some Ninepipe National Wildlife Refuge or adjacent wildlife management lands, it will not decrease the value of these lands. The proposed wildlife crossing structures are expected to enhance the overall value of these lands by increasing connectivity and wildlife movement between each side of the corridor.

Construction activities would affect the aesthetic value of the corridor. Operation of the widened roadway is not expected to affect the aesthetic view from the roadway. Views of the roadway would be affected by a widened roadway, with wider lane configurations having a greater effect than narrower lane configurations.

3.F. DETERMINATION OF CUMULATIVE EFFECTS ON THE AQUATIC ECOSYSTEMS

The geographic area considered for the analysis of cumulative effects on wetlands and stream habitats includes all watersheds in the project area, which support wetlands in the project corridor. This includes the Mission Creek watershed and the Crow Creek watershed.

Most past actions have contributed to some degree of loss of wetland area and decreases in wetland functions. Some of these past losses have been offset by the preservation of the Ninepipe National Wildlife Refuge and the subsequent protection of adjacent lands. Present actions, as well as future actions, would also likely result in incremental losses in wetland habitat in the project area, with the exception of abandonment of Duck Road, which could yield a net increase in wetlands if the area is used for compensatory wetland mitigation. The US 93 Ninepipe/Ronan project would minimize and avoid impacts on wetlands to the extent feasible and would restore hydrologic connectivity in numerous wetland systems, including connectivity with streams and floodplains. However, the project would also result in the cumulative loss of wetland habitat within the project corridor. Adverse impacts on wetlands would be mitigated through wetland compensation to restore or create additional wetland acreage.

Past road construction has resulted in poorly placed culverts and undersized culverts in the project corridor. The proposed action along with the US 93 Evaro to Polson project would rectify impacts on streams from past actions by replacing several culverts with bridges or enlarged culverts to improve hydrologic connectivity in the system and by restoring streams in the highway right-of-way.

All of these construction projects may contribute to cumulative downstream sedimentation in project area streams during construction. With implementation of the improved structures, the cumulative effect of these projects on fisheries resources is expected to be an improvement in the existing condition.

3.G. DETERMINATION OF SECONDARY EFFECTS ON THE AQUATIC ECOSYSTEMS

Secondary effects are effects on an aquatic ecosystem that are associated with a discharge of dredged or fill materials but do not result from the actual placement of the dredged or fill material. The most significant secondary effect with the proposed project would result from surface runoff. In order to comply with the requirements of the Clean Water Act, MDT and the contractor would obtain an NPDES General Permit for Discharge from Large and Small Construction Activities regulated by U.S. EPA and CSKT to control sediment discharge and erosion during construction projects. This permit is required to protect water quality and requires the completion of a SWPPP. The SWPPP requires a description of BMPs and stormwater management controls appropriate for the construction site including measures to reduce soil erosion, reduce site sediment loss, and manage some of the more common construction-generated wastes and construction-related toxic materials. In addition, stormwater facilities would be included in the final design for the proposed project to reduce the long-term impact of roadway runoff pollutants on sensitive receiving waters. Stormwater facilities would be maintained to ensure their continued intended function.

Another secondary effect is the possibility of accidental spills of hazardous materials during construction activities or during the subsequent use of the facility. However, MDT standard specifications would require the contractor to establish staging areas a minimum of 15 meters (50 feet) from streams and to implement spill prevention measures during construction near streams. Any improvements to the existing highway that increase capacity and reduce congestion would decrease the chance of these accidental spills resulting from the use of the highway by vehicles transporting hazardous materials.

LEAST DAMAGING PRACTICABLE ALTERNATIVE

Only three other alternatives have fewer wetland impacts than the preliminary preferred alternative: Rural 1, Rural 2, and Rural 7. Although the Rural 7 alternative has the fewest impacts on wetlands, it is estimated to cost $80 million dollars more than the next most expensive alternative (Rural 9) and $76 million more than Rural 10 (PPA). If Rural 7 was selected, the additional cost of $76 million could delay the proposed project a minimum of 6 years because there is insufficient funding in the current National Highway System budget for the local MDT district to support the additional cost. One of the key objectives in the corridor is to improve safety and delaying the proposed project an additional 6 years would mean the current high rate of accidents and accident severity in this corridor would continue. Also, the additional cost for the Rural 7 alternative would delay reconstruction of another 20 to 30 miles of roadway within the the local MDT district, which could also affect the safety of the traveling public. Mitigating an acre of wetland impact costs an average of $16,000 to $25,000. Assuming the cost is $25,000, the mitigation savings for the Rural 7 alternative would be $305,000. However, the projected savings does not approach the extra cost for constructing the Rural 7 alternative.

Alternatives Rural 1, 2, and 7 have the potential to reduce accidents by 16%, 17.2%, and 18.6% respectively, while Rural 10 (PPA) has the potential for reducing accidents by 20.1% The projected level of service (LOS) for Alternatives Rural 1, 2, and 7 is D-, D, and D+, respectively, while the projected level of service for the Rural 10 (PPA) is LOS D+, although it wouldn't deteriorate to LOS D+ until after 2020, whereas the other alternatives deteriorate at year 2020. Alternative Rural 7 is projected to operate at LOS D+ after 2016.

Alternatives Rural 1, 2, and 10 (PPA) have similar costs and similar wetland impacts. However, Alternative 1 does not address the operational or safety needs associated with slow moving vehicles northbound on Post Creek Hill. Nor does it address the need for southbound passing opportunities throughout the proposed project and the capacity and safety needs for traffic volumes between Innovation Lane and the south city limits of Ronan. Alternative 2 addresses the slow moving vehicle issue northbound on Post Creek Hill but not the need for southbound passing opportunities throughout the proposed project and the capacity and safety needs for traffic volumes between Innovation Lane and the south city limits of Ronan. The PPA would address all of these needs while only increasing wetland impacts by approximately 0.2 to 0.3 acres.

Lastly, the preliminary design for the proposed project has incorporated numerous measures to avoid wetland impacts for all of the proposed project alternatives and this effort will continue. Therefore, the project proponents feel the PPA constitutes the least damaging practicable alternative.

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